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What is a technical communicator? Technical communicators develop and design instructional and informational tools needed to ensure safe, appropriate, and effective use of science and technology, intellectual property, and manufactured products and services. Technical communicators combine multimedia knowledge and strong communication skills with technical expertise to provide education across the entire spectrum of users' abilities, technical experience, and visual and auditory capabilities. For more information visit www.stc.org/about-stc/defining-technical-communication.

The Society for Technical Communication is the largest association of technical communicators in the world. STC is currently classifying the Body of Knowledge for the field and communicating the value of technical communication. Its volunteer leadership continues to work with government bodies and standards organizations to increase awareness and accurate perception of technical communication. Membership is open to all with an interest in technical communication. Visit the STC website (www.stc.org) for details on membership categories, fees, and benefits.

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ARTICLES

DEPARTMENTS

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INSTRUCTIONS FOR AUTHORS

About the Journal

Technical Communication is a peer-reviewed, quarterly journal published by the Society for Technical Communication (STC). It is aimed at an audience of technical communication practitioners and academics. The journal's goal is to contribute to the body of knowledge of the field of technical communication from a multidisciplinary perspective, with special emphasis on the combination of academic rigor and practical relevance.

Technical Communication publishes articles in five categories:

- Applied research – reports of practically relevant (empirical or analytical) research
- Applied theory – original contributions to technical communication theory
- Case history – reports on solutions to technical communication problems
- Tutorial – instructions on processes or procedures that respond to new developments, insights, laws, standards, requirements, or technologies
- Bibliography – reviews of relevant research or bibliographic essays

The purpose of *Technical Communication* is to inform, not impress. Write in a clear, informal style, avoiding jargon and acronyms. Use the first person and active voice. Avoid language that might be considered sexist, and write with the journal's international audience in mind.

Our authority on spelling and usage is *The American Heritage Dictionary,* 4th edition; on punctuation, format, and citation style, the Publication Manual of the American Psychological Association, 7th edition.

Manuscript Preparation and Submission

Submitting a manuscript to *Technical Communication* for review and possible publication implies that its submission has been approved by all authors, researchers, and/or organizations involved, that the manuscript (or a substantial portion) has not been published before, and that the manuscript is not under review elsewhere.

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Miriam F. Williams
Editor

Good Research Leads to Good Practice: An Interview with Dr. Avon Murphy, STC Fellow

To introduce this issue of *Technical Communication*, which is filled with excellent research by practitioners and academic researchers, I had the pleasure of interviewing STC Fellow Dr. Avon Murphy. Dr. Murphy's technical communication experience includes work in industry, government, and higher education. Dr. Murphy has over 18 years of experience teaching and researching in institutions of higher education, several years as a technical writer/analyst at Washington State Legislative Service Center, and over 30 years as Principal at Murphy Editing and Writing Services. His many contributions to STC include many years of service as Book Review Editor of *Technical Communication* and service on the journal's Editorial Advisory Board.

Miriam Williams: Hi Avon. First, I'd like to thank you for your many contributions to the field, to STC, and to *Technical Communication*. As a technical communicator with many years of experience as an academic and practitioner, what is value of technical communication research to practitioners and to STC membership?

Avon Murphy: All that we do in technical communication comes down to a triumvirate of practice, research, and teaching. One outcome of their relationship is that good research leads to good practice. I came across a visual example of this when I walked into my first interview for a position at Microsoft. On the manager's table were stacked a dozen issues of *Technical Communication*. Research was alive and well in a Redmond office.

Look at the contribution of people like Robert Van Buren and Mary Fran Buehler. Their years of editorial work at the Jet Propulsion Laboratory led them to formulate a new way to approach editorial management, distilled in their seminal *The Levels of Edit* (1976). This blockbuster of a thin book heavily influenced further research seen in dozens of publications, such as Carolyn D. Rude's *Technical Editing* (1991) and several papers at STC annual conferences. The levels of edit concept is now entrenched in most editorial departments as well as course syllabi.

I've enjoyed serving on both the *Technical Communication* editorial board and the committee that annually selects the winner of the Frank R. Smith Award for best article in the journal. In these roles I've been astounded by the creative, passionate, and impactful contributions made by many authors. At this level of research, these people go well beyond mere tinkering with ideas and satisfying their curiosity to offer fresh approaches that we all can apply. And STC isn't alone. Other journals have likewise published articles evidencing no diminution of quality in recent years.

Williams: Speaking of research, I know that you're working on a bibliography project. Tell us a bit about the project. How did it come about? What is the goal of the project?

Murphy: The project is a continuously updated web-based bibliography of technical communication articles published beginning in 2000. As a reviewer of hundreds of manuscripts, I've seen that researchers often have difficulty discovering relevant articles. The service is meant to address this problem.

A life-long interest in bibliography led to my keeping of technical communication research lists beginning in 1975, then to personal Microsoft Access and FileMaker Pro databases covering articles in the field. In August 2022 Washington State University-Vancouver approved a capstone project for six computer science seniors to develop the bibliography service, using a variety of modern technologies. The project will open to users in May 2023 or a few weeks later. We'll recruit search

Good Research Leads to Good Practice: An Interview with Dr. Avon Murphy, STC Fellow

testers earlier, hopefully in March 2023. Or you can volunteer now!

Users can search by author's name, article title, journal name, and year. Most importantly, they can do deep subject searches taking advantage of hundreds of subject tags and artificial intelligence.

Our sources include full runs of 60 journals of special interest to technical communicators, such as *IEEE Transactions on Professional Communication*, *Journal of Business and Technical Communication*, *Journal of Scholarly Publishing*, *Journal of Technical Writing and Communication*, *Technical Communication*, *Technical Communication Quarterly*, and *Written Communication*. Also included are a small handful of websites for such research groups as Nielsen Norman Group and *Smashing Magazine*. We don't include articles unrelated to our field, brief notes and unresearched opinion pieces, editors' introductions to issues (unless the introductions are research-based), miscellaneous web articles, or retracted articles.

I've always looked out for tools—one reason I enjoyed serving as the *Technical Communication* book review editor for 17 years. Note: I don't see myself as a top-flight original researcher. My strength, rather, is helping other people discover information that will help them achieve their goals. I probably should have become a librarian!

Please email me at avonmu@comcast.net if you have questions or wish to do some usability testing.

Williams: In academia, across disciplines, we've seen researchers transition to work outside of higher education. While most pursue jobs in industry, some are interested in consulting. Given your experience, what advice would you give technical communicators who are interested in working as technical communication consultants or working as independent contractors?

Murphy: If you've succeeded as a technical communication teacher, you have important tools to do a good job as a technical communication consultant or contractor. Let's look at three tools.

One of the most important things you do as a teacher is conduct audience analysis. You know that instructional methods that work with two-year technical students can prove disastrous in a liberal arts college. Negative class evaluations tell you when students don't get it. In industry you do a lot of user testing of products, including your documentation. If your audience analysis has proven faulty, your users, again, don't get it. Sizing up your "clients" in both environments and adapting accordingly are vital to success.

As a teacher you explain concepts through varied media. Your explanations help students grasp the big picture as well as the small as they come to understand everything from abbreviations to Zoom. And guess what consulting clients want you to do: use varied media to explain to people how to use new products, how to express themselves, how to remain safe. You're still teaching, but in new ways.

Research is second nature for you as you teach in our varied field. You constantly discover new approaches to the numerous topics you introduce to your students. In contracting, you never know for sure just what the next gig might entail, so you continually expand your knowledge, applying sound research principles learned in academia. Instead of discussing how to develop academic programs, you're now on product teams discussing how to build and document new systems. In my case, my spirit was re-invigorated by now being able to apply and do what I'd been teaching—instead of showing alternative interfaces on a classroom whiteboard (the good old days), I was now coding and testing product interfaces.

Williams: You have witnessed a lot of changes in the field over the years. Given what you know of our field's history, what is your hope for the future of technical communication?

Murphy: A *lot* is going on in technical communication, and there will always be more. Because we work closely with and use new technologies, our field is ever changing. We're continually attempting to redefine *technical communication*: 100 articles have been written since 2000 attempting to do just that.

Since practitioners/researchers such as Ginny Redish led the charge in the 1990s, we have continued to prove the value that technical communicators bring to organizations. We used to work in a small number of industries, especially in engineering environments. But now we work in almost every industry—even plumbing services.

Although writing and editing remain our central focuses, our activities are becoming more

varied. Job ads now recruit us to manage complex graphics research projects, perform data analysis, design websites, and perform tasks unheard of until recently.

We deal with technological change in a continually repeating pattern. For example, I was a young technical writing instructor when something called computers began to upend old methods in our field. Accustomed to seeing huge machines locked away out of view, in the 1980s I got my hands on dumb terminals and then personal computers! It was headline news when the first prize in a writing contest I ran was an IBM PC Jr. We began to see articles and books rolling off the presses excitedly describing how we could edit on a screen and format pages electronically. Then that excitement subsided, and computers became a tool for everyone. Today there are many strands of research on computer-related topics, but almost no one today makes a point that we're talking about computers. The same thing has happened with content management systems, the internet, and other miracle—technical communicators are always there to take everyone from discovery to acclimation to adoption.

I'm heartened to see the excellent work being done by a new generation of technical communicators. And I'm ready to be amazed by what they produce next. Yes, our field is alive and very well.

Williams: Thank you for your time and for all that you do for STC and as an editorial advisory board member of *Technical Communication*!

IN THIS ISSUE

It is serendipitous that the excellent articles in the February 2023 issue are well suited for this month's cover illustration contest on data visualization. The authors in this issue make the case for collaboration with visual designers, propose solutions to problems in information visualization, and help us to visualize their findings through case studies, tutorials, new theoretical frameworks, emergent style guides, and recommendations for embracing sustainable content and increasing inclusivity.

We begin the issue with "Visual Translation, Design, and Language Justice: A Case Study from North Central Florida," by Valentina Sierra-Niño and Laura Gonzales. The authors write, "we, a bilingual technical communication researcher and teacher, and a bilingual visual designer, researcher, and teacher, are collaborating on a project to make visible, in literal terms, the importance and dynamic nature of language access. We argue that as technical communication researchers continue working with and as translators in the development of technical information for multilingual audiences, they should embrace a shift from language access to language justice. Given the increased need to address issues of language diversity when developing and sharing technical information, as evidenced, for example, during the COVID-19 pandemic, technical communicators should continue working with visual designers and multilingual community members to illustrate the dynamic nature of language and its role in effective communication design."

In the second article "A Framework for Understanding Cognitive Biases in Technical Communication," by Quan Zhou, the author writes, "This work reveals significant problems in information visualization that can provide for a nuanced discussion on cognitive biases in technical communication. Using these problems as a guide, I draw upon cognitive theories in how people use information, the prospect theory about how people make decisions, and the self-determination theory about how such decisions are influenced by the social context. I then assemble a framework of principles that illuminates the workings of cognitive biases. I extrapolate sample questions that technical communication can use to examine cognitive biases in information visualization and technical communication."

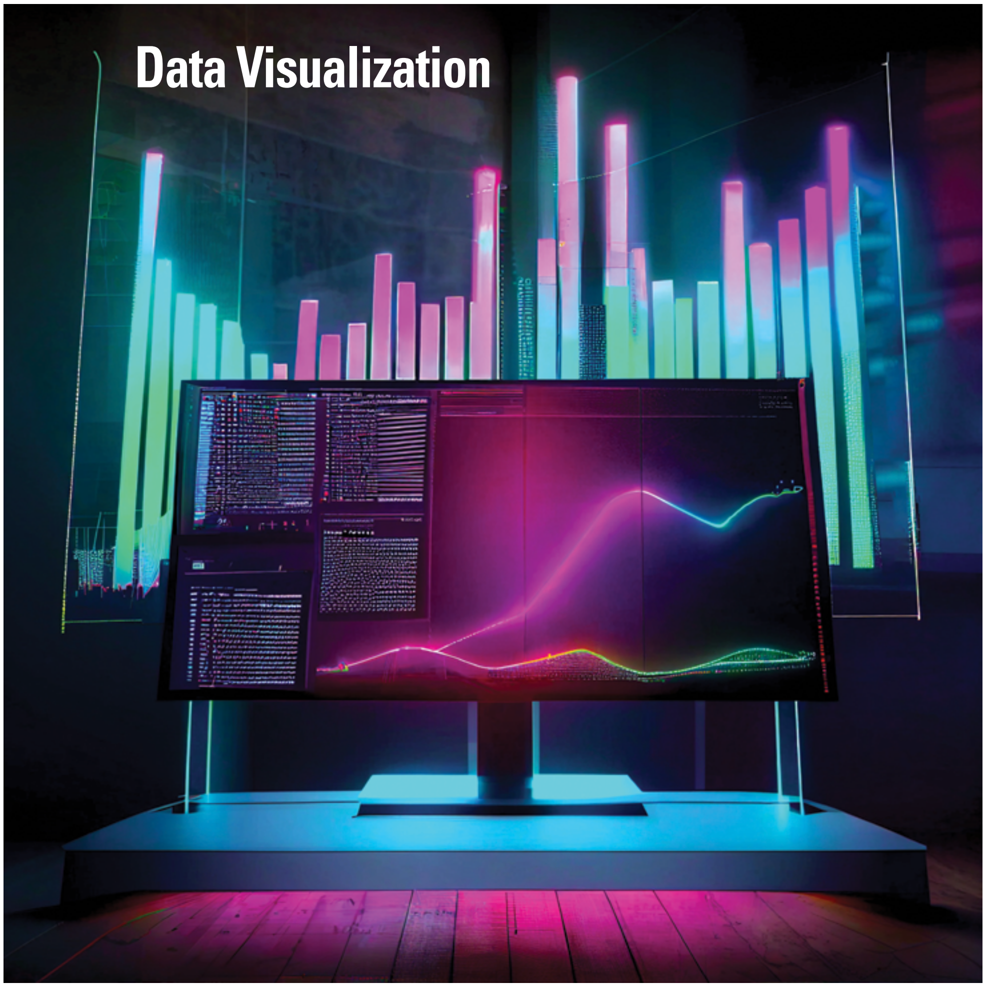
Next, in "Increasing Inclusion in Technical Communication Academic Programs," Chris Dayley helps us to visualize the experiences of students and faculty in academic programs through interviews and analysis. The author writes, "TC academic programs, like higher education in general, are interested in increasing diversity. However, rather than focusing on simply increasing the number of students from diverse backgrounds, TC programs should focus on increasing program inclusiveness. This includes actively including diverse voices in program decision making and being willing to make changes based on the thoughts, ideas, and opinions of traditionally marginalized people. These

recommendations can also be used by practitioners to begin increasing inclusion in the workplace."

In "Elements of an Emergent Style Guide for Kickstarter" by Stephen Carradini and Eric Nystrom, the authors help the readers visualize, through many examples and meticulous detail, an emergent style for crowdfunding campaigns. The authors wrote, "this study uses computer-aided corpus analysis to identify users' expectations for Kickstarter campaign text. We identify stylistic elements frequently featured in campaigns that users accepted (successful campaigns) and rejected (unsuccessful campaigns). The binary nature of Kickstarter makes this method possible—with few exceptions, a campaign either succeeds or fails to reach its financial goals. As a result, a corpus analysis can identify elements of style included in successful or unsuccessful campaigns. Given the context of campaign creators trying to convince readers to fund a speculative venture, we found that readers accept certain stylistic conventions that function as indicators of trustworthiness."

We conclude the issue with an important tutorial, "It's Not Just What You Say, It's How You Say It: Mitigating the Impacts of Greenhouse Gas Emissions with Effective Content," by STC Associate Fellow Alisa Bonsignore. In this tutorial, Bonsignore helps us to understand and visualize ways we might contribute to sustainability efforts. The author writes, "The goal of this article is to provide a tutorial for measuring the sustainability impacts of our content. Sustainability considerations should be just as important as the accessibility and usability of content. Fortunately, following our known best practices for effective content creation and governance also results in a smaller carbon footprint. This not only benefits the planet but also positions content creators as valuable business assets."

On the Cover



ARTIST'S NOTE

My illustration shows a widescreen monitor with open windows of text/code and a line graph covering the entire screen. This represents the current state of working with data experienced daily by most technical communicators and other employees. Behind the monitor is a holographic bar chart rising above the monitor's height. This is to depict the background research and developments in the space of interactive media, for example in AR and VR, and its impact on how data will be visualized in the future. Although it is not widely used currently, it is slowly coming from behind the scenes into the limelight. I show this by using brighter neon colors to represent the bars in the graph. There will be a point in time when both ways of working and representing data will be used simultaneously. It is possible that in the distant future when there will be no need for large monitor screens.

ABOUT THE ARTIST

My name is Asebi Bofah. I am a recent MSc graduate in technical communications from Missouri S&T with a BSc. in minerals engineering from Ghana. I recently accepted a role as a communications coordinator at the Rio Tinto Kennecott mine in Salt Lake City, Utah. I look forward to utilizing my mining background and the skills I garnered in graduate school to support the development and execution of internal communication at the mine.

Visual Translation, Design, and Language Justice: A Case Study from North Central Florida

doi.org/10.55177/tc406986

By Valentina Sierra-Niño and Laura Gonzales

ABSTRACT

Purpose: This article presents a case study of how a bilingual technical communicator and a bilingual visual designer collaborated to visualize stories of language access in North Central Florida.

Method: We combined participatory methods used in technical communication (Agboka, 2013; Rose and Cardinal, 2018) with interviews and design methods (Gonzalez Viveros et al., 2020) from both technical communication and visual design. The goal of the study was to document the languages spoken by immigrant community members in North Central Florida, to interview immigrant community members about their languages, and to transform interview data into visual designs that could inspire conversation about language justice in our community.

Results: By transforming interview data into visual designs (i.e., collages), we were able to understand the complexity that language plays in the lives of multilingual communities, gaining insights into both the challenges and the advantages of speaking multiple languages as immigrants in North Central Florida.

Conclusion: We encourage other technical communication and design researchers to implement visual data approaches in their work, particularly when working with participants whose language histories span beyond white American Englishes. As technical communication continues expanding into more global contexts and as language diversity continues to be a reality in contemporary technical communication work, interdisciplinary collaborations among technical communicators, translators, and designers, will continue to gain importance and impact, particularly in community-driven projects.

Keywords: Translation, Community Engagement, Design, Language Access

Practitioner's Takeaway

- Translation in technical communication requires attention to culture, power, and collaboration
- Collaborations between technical communicators and visual designers can provide additional insights into the role that translation plays in contemporary technical communication research
- Multilingual communities value language as a critical part of their identity
- The use of visual design, in this case, in the form of collages as a visual language, can open opportunities for dialogue with multilingual communities beyond the barriers of written and spoken languages
- The use of visual language as part of translation can help facilitate meaning-making processes and make visible the connections between language and identity

Translation has long been a part of technical communication research, particularly in global contexts. Technical communicators were originally defined as "translators" of information who could make technical information accessible for broader audiences (Slack et al., 1993). With the continued globalization of the field, technical communication researchers continue expanding definitions of translation and its connection to technical communication research, practice, and pedagogies. Particularly during the social justice turn in technical communication (Walton, Moore, & Jones, 2019), translation and language diversity, more broadly, continue to be emphasized by technical communication researchers invested in working collaboratively with multilingual communities in both local and global contexts (Agboka, 2013; Dorpenyo, 2019; Gonzales, 2018; Pihlaja & Durá, 2020; Walton, Zraly, & Mugengana, 2015).

For example, researchers such as Godwin Agboka (2013) and Isidore Dorpenyo (2019) emphasize the role that translation and localization play in designing information with and for multilingual communities in the Global South. Agboka (2013) advocates for a participatory approach to localization, which considers collaboration between users and designers as critical to the development and implementation of multilingual tools and technologies. Other researchers, such as Massimo Verzella (2017), emphasize the role that translators play in the development of technical information, making important connections between translators, technical communicators, and user experience researchers. As Verzella (2017) explains, "translators can be seen as users who are also producers of meaning, and translation an act of mediation enacted through the negotiation of meaning making meaning-making. Importantly, translators can help development teams understand what type of cultural differences are relevant for user experience design, how much language matters in design, and what adjustments are necessary to prepare digital products and documentation for localization" (p. 54). Since texts are "not always designed with goodwill in mind," the mere translation of information from one language to another does not guarantee language access (Jones & Williams, 2018, p. 371). Indeed, as Natasha N. Jones and Miriam F. Williams (2018) explain, "texts and technologies that are complicit in supporting and promoting oppressive practices have social, cultural, embodied, and material impacts on communities" (p. 371). These impacts, and the oppression they perpetuate, can be extended when translation is performed incorrectly and without attention to power and rhetorical effects. Thus, as Cardinal et al. (2021) articulate, "When thinking about how practitioners and scholars design communication for linguistically and culturally diverse audiences, we must ask these specific questions: Whose communication practices, cultures, and languages are at the center of an organization? Who, thus, needs access due to the marginalization of their languages? Who has the power to grant access within these configurations?" (p. 39). These questions are important not only for agencies and organizations seeking to follow language access laws but also for technical communicators interested in collaborating with multilingual communities to design and share multilingual materials and resources that facilitate effective communication and information design.

In her study of informed consent documents in translation, Tatiana Batova (2010) also highlights how cultural differences embedded in technical documents are often lost in translation, providing strategies for how technical communicators can work with translators to adapt and transform information across languages to maximize usability. This work demonstrates that there are multiple approaches to practicing translation and collaborating with translators in technical communication research.

Translation is a culturally-based practice that requires attunement to community knowledge, power dynamics, and the relationships between researchers and target audiences. Much of the existing literature on translation and technical communication points to the fact that providing language access, or making information accessible across languages, requires much more than the transformation of words from one language to another (Sun, 2012; Agboka, 2013). Translation is not just the transformation of words in one language for the equivalent words in another language. Instead, translation is just one component of successful language access and requires the rhetorical negotiation of meaning not only across languages but also across cultures and worldviews (Gonzales, 2018). As Cardinal et al. (2021) explain in their discussion of language justice, "an access framework mostly focuses on translation and interpreting only when asked for and lacks a holistic approach. While it is very important

that communities do have information in their own language, translation and interpretation are only one piece of the puzzle" (p. 39). In other words, making information accessible across languages can encompass translation. Still, it requires close collaboration between various stakeholders invested in designing successful multilingual and cross-lingual experiences and interactions.

Building on this research, in this article, we present a case study of how we, a bilingual technical communication researcher and teacher and a bilingual visual designer, researcher, and teacher, are collaborating on a project to make visible, in literal terms, the importance and dynamic nature of language access. We argue that as technical communication researchers continue working with and as translators in the development of technical information for multilingual audiences, they should embrace a shift from language access to language justice. Given the increased need to address issues of language diversity when developing and sharing technical information, as evidenced, for example, during the COVID-19 pandemic, technical communicators should continue working with visual designers and multilingual community members to illustrate the dynamic nature of language and its role in effective communication design. As technical communication continues expanding into more global contexts, and as language diversity continues to be a reality in contemporary technical communication work, interdisciplinary collaborations among technical communicators, translators, and designers will continue to gain importance and impact, particularly in community-driven projects (Cardinal et al., 2021).

FROM LANGUAGE ACCESS TO LANGUAGE JUSTICE

Research in technical communication has expanded the field's understanding of translation and its role in making information accessible to multilingual audiences. For example, in their work helping a nonprofit organization to translate health-related information, Rose et al. (2017) point to the fact that "translation and translators have a critical role" within multilingual technical communication research. Other scholars, such as Agboka (2013) and Walton et al. (2015), explain that translators are not just transformers of meaning in a research project but can instead influence the entirety of a research and design process and should be considered integral to technical communication teams.

In industry contexts, there have also been important distinctions and clarifications made regarding the role that translators and translation play in community participation. For example, the group, Communities Creating Healthy Environments (CCHE), designed a "Language Access Toolkit" that provides guidelines for organizations seeking to better serve multilingual community members. CCHE makes a distinction between language access and language justice. Language access is a Civil Right protected under the 1964 Civil Rights Act as well as Executive Order 13166, which "requires Federal agencies to examine the services they provide, identify any need for services to those with limited English proficiency (LEP), and develop and implement a system to provide those services so LEP persons can have meaningful access to them" (Arguelles et al., 2011). While language access laws require organizations receiving federal funding to provide access to information for community members who speak languages other than English, language justice efforts move beyond the minimum requirements of the law. Instead, according to CCHE, "Language justice is about building and sustaining multilingual spaces in our organizations and social movements so that everyone's voice can be heard both as an individual and as part of a diversity of communities and cultures. Valuing language justice means recognizing the social and political dimensions of language" (Arguelles et al., 2011). In other words, language justice emphasizes the importance of multilingual communities not only having access to information but also feeling as though they can participate and are included in the communication processes and protocols within a specific community or organization.

Acknowledging the social and political nature of language allows us to recognize that a lack of language access and language justice can have a significant impact on communities' well-being. The distinction between compliance with basic regulations and a more comprehensive approach to information access is also noted by Evia and Patriarca (2012) in their work with technical communication for construction Latino workers in the U.S. The authors found that the documents that provide work safety information for workers "privilege utilitarian efficiency (compliance

with regulations to protect companies) at the expense of critique and ethical action (ensuring that workers actually understand the rules)" (p. 342). While laws and regulations aim to guarantee a baseline for language access, actually providing language access requires attention to several complexities, such as demographics, advocacy groups, the political climate of each state, political agendas, and even the awareness that people, both providers and multilingual community members, have about these legal rights (Chen, Youdelman, & Brooks, 2007). Within these complexities, there are power imbalances. When working on translation and information design, technical communicators and designers can help balance those power inequalities through approaches that center communities' needs and perspectives, including participatory design.

Participatory approaches are based on mutual learning between researchers and participants (Robertson & Simonsen, 2012). The meaning and the interactions that affect the roles within the power structures of communication are consciously articulated and negotiated (Evia & Patriarca, 2012). Participatory design seeks to include the experiences of multiple people both in the process and outcome of the design. Thus, participatory design can foster the ability to include different voices and perspectives. This is critical when working with multilingual audiences whose voices come in different languages, from different cultures, and have different ways of interpreting their lived experiences. According to Cardinal, Gonzales, and Rose (2020), participatory design can be used as an approach that "values the racial, linguistic and cultural diversity of contemporary audiences" when working with multilingual communities (p. 2).

Being aware of and respectful of racial, linguistic, and cultural diversity is critical to avoiding the misrepresentation of culture in information design. Misrepresentation and cultural appropriation can occur when "the translator adds, explains, replaces or omits source linguistic or visual elements at the expense of cultural concepts to achieve a functional equivalence." (Bouziane, 2016, p.139). Besides the use of written language through letterforms, other kinds of visual elements such as photographs, weavings, and symbols are also "graphic counterparts to language, religion and identity" that, in multicultural power structures, might be at risk of being misrepresented (St John, 2018, p.257). In this article, we propose that language justice can be approached through the visual dimensions of language, specifically by leveraging the power of visuals in participatory design to illustrate the connections between language, culture, and identity.

Besides the perpetuation of power imbalances and misrepresentation of cultures, the lack of adequate language access services can bring profound negative consequences for individuals who do not speak the dominant language of a place. In contexts of global migration and language diversity, several examples show that language justice is needed. For example, a 13-year-old girl died in Texas in 1999 due to misunderstandings caused by language barriers between the English-speaking medical staff and the girl's Spanish-speaking parents (Chen, Youdelman, & Brooks, 2007). In Sweden, there have been increasing reports of asylum-seeking children who suffer from Resignation Syndrome, a stuporous condition similar to catatonia. A major trigger that leads children to develop this condition is the stress and trauma generated when they have to translate, for their parents, migration documents with negative decisions (von Knorring & Hultcrantz, 2020). More recently, after the Uvalde massacre in Texas, where nineteen children and two teachers were fatally shot, the Texas House committee in charge of investigating the incident released a report written only in English. The committee stated that it would take weeks to have the report translated into Spanish even though more than 80% of Uvalde population is Hispanic or Latino and "half of residents age 5 or older speak a language other than English at home" (Carroll, 2022).

Following the work of technical communication researchers who expand the fields' conception of translation beyond the transformation of words, and in alignment with community and industry groups such as the CCCHE and the Designing Language Access Group at the University of Washington-Tacoma, in this article, we demonstrate how technical communicators can work alongside translators and visual designers to further expand understandings of language access toward language justice efforts that are now more critically needed than ever. Specifically, we document a project that we are working on in an attempt to make visible, in literal terms, how language access encompasses much more than translation, and how communities, technical communicators, and visual designers can come together to illustrate the importance

of language access in their local contexts. To begin, we provide some background on our community context in North Central Florida, noting how visualizing language access in our community helped to demystify stereotypes about multilingual community members and their connections to language and place.

ABOUT NORTH CENTRAL FLORIDA

The case study we document in this article took place primarily in Gainesville, Florida, as well as other cities within North Central Florida. Although language diversity is understood as a present reality in large Florida cities such as Miami and Orlando, less attention is paid to the language diversity present in rural North Central Florida cities. Yet, immigrant populations are increasing in these regions (*New American Economy*, 2021). For example, the *Gainesville Immigrant Neighbor Inclusion Initiative Blueprint*, produced by a coalition of community organizations in the City of Gainesville and Alachua County in 2022, cites that in 2019, there were 14,800 immigrants living in Gainesville, Florida. From 2014 to 2019, the total population of Gainesville increased by 2.8%, and 24.4% of the total population growth in the city was attributable to immigrants (*New American Economy*, 2021). The top five countries of origin for immigrants living in Gainesville include China, Venezuela, Cuba, India, and the Philippines (*New American Economy*, 2021). While there may be an assumption that Spanish is the language other than English most spoken in North Central Florida, there is an increase in other languages spoken within this city, including Mandarin Chinese, Portuguese, Haitian Creole, and multiple Indigenous languages from Latin America.

It is important to note that attaining data on the languages spoken in any city is difficult work, particularly because immigrants are not always visible in their communities. Documentation processes like the census create fear and a lack of response from immigrant community members who are undocumented and/or who are unable to access census information in their languages and in their communities. For this reason, projects like the case study we share in this article can help to make visible the language diversity present in a city, encouraging immigrant community members to share their stories of language access and increase representation. In the case of this project, visualizing language access through participation from multilingual communities helped us advocate for the need to increase language access services in our local city, county, and beyond.

COMBINING TECHNICAL COMMUNICATION AND DESIGN METHODOLOGIES

We introduce a case study to help illustrate how collaborations between technical communicators and visual designers can expand possibilities for understanding the role that language plays in multilingual communities. According to John Gerring (2004), a "case study is best defined as an intensive study of a single unit with an aim to generalize across a larger set of units" (p. 341). Furthermore, Gerring (2004) clarifies, "the case study method is correctly understood as a particular way of defining cases, not a way of analyzing cases or a way of modeling causal relations" (p. 341). We define the project that we share in this article as a case study in that we are looking at a specific population (i.e., multilingual communities in North Central Florida) and seeking to explore how this population defines language diversity and translation based on their experiences. The goal of implementing a case study methodology is to encourage other technical communicators to collaborate with visual designers when working with multilingual participants and multilingual technical content, as visuals can provide additional insights into the complexity of language and its role in multilingual technical communication. The broader goal of this project was to illustrate to city and county officials and local agencies the experiences and needs of multilingual community members, with the purpose of expanding language justice resources in the area.

In the case study we share in this article, we combined participatory methods used in technical communication (Agboka, 2013; Rose & Cardinal, 2018) with interviews and design methods (Gonzalez Viveros et al., 2020) from both technical communication and visual design. The purpose of the study was to document the languages spoken by immigrant community members in North Central Florida, to interview immigrant community members about their languages, and to transform interview data into visual designs that could inspire conversation about language justice in our community. These designs are

currently being shared with different stakeholders at the county, city, and broader levels, as part of larger efforts to increase language access services in rural parts of Florida. In this article, we describe this process of transforming participants' interview responses into visual designs—specifically collages.

We first interviewed 60 community members in Gainesville and other cities in North Central Florida. Interview participants were selected in collaboration with a local non-profit organization, the Rural Women's Health Project, which helped us identify immigrant community members who spoke multiple languages and would be willing to participate in this study. The Rural Women's Health Project has been doing language activism and health justice work in our community for over 30 years, and they provided us with the knowledge, resources, time, and motivation to complete this study while also being active participants in the data collection, analysis, and sharing process. 60 interviews (approximately 30 minutes each) took place. Most were conducted via Zoom during the COVID-19 pandemic, while some interviews also took place in person at community events at times when transmission cases were lower in our community. All of these interviews were audio recorded.

Following the interviews, the authors of this article listened to the interviews individually and collectively. Following this initial listening session, in collaboration with our non-profit community partner, we listened to the interviews again and identified two emerging themes from the interview data. The first theme was related to language *barriers*. In their interviews, participants shared examples of barriers, obstacles, or discrimination they faced due to speaking a language other than English in their community. The identification of these barriers would help us share this data with our local city to suggest improvements in language justice resources. The second theme was related to language *joy*. Rather than focusing only on language struggles, participants highlighted how they, as multilingual immigrant community members, experienced and practiced joy and happiness due to their ability to speak multiple languages.

Rather than simply sharing interview quotes, in the spirit of participation and collaboration, we wanted to transform the quotes into visual narratives that told stories of the various languages we documented in our project. Given that Valentina Sierra-Niño (the first author of this article) is a visual designer and student, she took the lead in transforming our interview quotes into visual collages. The collages are a visual representation technique where a variety of images are separated from their original context, fragmented, combined, and weaved again into new compositions. While the fragments of images may have existing meanings, articulating them in different ways into collages opens up the possibilities to create new meanings and visualize stories (Gonzalez Viveros, 2020).

For this project, the collages were digitally created using Adobe Photoshop. There are several design kits that suggest collage as a tool to create a visual record of research during design processes (Sierra-Niño, 2022). The toolkits usually suggest that collages can be created by participants or designers—but not as a co-creation of both—to visualize their opinions or emotions about a given topic. Moreover, the use of collage both as a process and outcome of design projects have not been extensively explored (Sierra-Niño, 2022).

The collages were created following the guidelines suggested by Gonzalez Viveros (2020). Some of these recommendations include carefully planning the images to be included in the collage, while still being open to experimenting with new additions and combinations as the process evolves; recognizing and reflecting on the meanings of each image and how these change as the images are fragmented; and developing a visual language that creates consistency across a set of collages (p. 43).

In technical communication, researchers have long identified connections between written and visual information, particularly in relation "to issues of data representation, ethics, and intercultural communication" (Turner and Gonzales, 2020, n. p.). As Heather Turner and Laura Gonzales (2020) further elaborate, "When technical communicators encounter complex information that cannot be presented graphically, they often utilize their own design skills and processes to visually represent information" (n. p.). In this particular project, we pair technical communication and design skills together to further understand our participants' approaches to and discussions of language justice.

The collages were drafted and designed in consultation with the interview participants. Participants were invited to comment on and make design suggestions for their collages during multiple

follow-up meetings in order to shape how their languages would be visually represented. Through this process, Valentina Sierra-Niño decided to incorporate two themes into the collages, birds and plants, birds to symbolize migration and plants to represent the land that our participants came from. The birds are also representative of their countries, cultures, or personal experiences and are the main connecting elements across the collages. The themes of birds and plants allowed the collages to come to life and to represent our participants' stories in visual terms. This combination of design and technical writing further highlights recent work in technical communication that acknowledges the role of graphics and other visual design in conveying technical information (Bahl et al., 2020).

In the sections that follow, we describe how Valentina Sierra-Niño transformed three interviews into collages representing three languages: Arabic, Haitian Creole, and Hindi. The collages are part of a series of postcards that have been presented and shared at public events in the city of Gainesville. On one side of each postcard, there is a collage and a written excerpt in Arabic, Haitian Creole, or Hindi from one of the interviews. On the other side, there is an explanation of the meanings behind the main images in the collage and the written excerpt in English. While the multilingual written text is part of the postcards, the text is not the most important part. Instead, the visual language, expressed through the collages, became a central component to facilitate the exploration and negotiation of meanings with the interview participants. In this discussion, we emphasize how the collaboration between a bilingual technical communicator, a bilingual designer, and our multilingual participants shaped the designs. Following the introduction of these collages, we discuss how the visual aspects of translation provided an important layer to understanding language justice and its connection to technical communication.

COLLAGE 1 - ARABIC

The first collage we created was based on interviews we conducted with a woman who is an Arabic speaker from Saudi Arabia. During her interview, this participant explained that language and culture are intricately connected. She stated, "The Arabic language is linked to our identity and to our religion. We are Muslim, and it is a privilege to speak Arabic because you can read the holy book in the native language in which it was written. You understand it better than those who read the translation because you cannot translate everything." At the same time, while this participant highlights the value of her language, she also explains that not having access to information in your language while living in the U.S. is also very violent: "we consider it a privilege, so it's very emotionally harmful to be in a place where your language becomes your obstacle. You feel vulnerable, tied up. You feel that you don't belong here and you cannot live here." Figures 1 and 2 illustrate how we transformed this participant's quotes into a collage with writing in both Arabic and English.

In the foreground (see Figure 1), the collage about Arabic shows a falcon with falling feathers and Muslim woman wearing a hijab. The woman is walking towards a fragmented image of a road in North Central Florida, framed within a picture of the Hima desert in Saudi Arabia, the home country of this interview participant.

The connecting element across all collages are birds and plants, which we used as a metaphor for migration. In the collage about Arabic, the bird is a falcon, the national bird of Saudi Arabia. In the initial interview, the participant mentioned that it was harmful to be in a place where her language was an obstacle, as noted in the quote included on the collage itself. That is why Valentina Sierra-Niño decided to include a falcon on the collage, representing it as if it is losing its feathers to imply that the bird is hurt. In a subsequent conversation with the participant to explore the meanings behind the images in the collage, she elaborated on the symbolic significance of the falcon. She mentioned that besides being Saudi Arabia's national bird, the falcon was a bird that wealthy people have, and because of this, it is associated with power. The interview participant found the use of the falcon in the collage to be very expressive, standing in as a cultural symbol of power, losing its feathers, and facing a state of vulnerability. This metaphor reflects what the participant had mentioned during her interview when she discussed her perspectives on the Arabic language as a privilege that loses its power in the context of North Central Florida.

Another multilingual community member, who is originally from Bangladesh, related the falcon and its falling feathers as the act of shedding off parts of her own culture as she migrated and tried to fit in a

Figure 1. Arabic Collage in Arabic

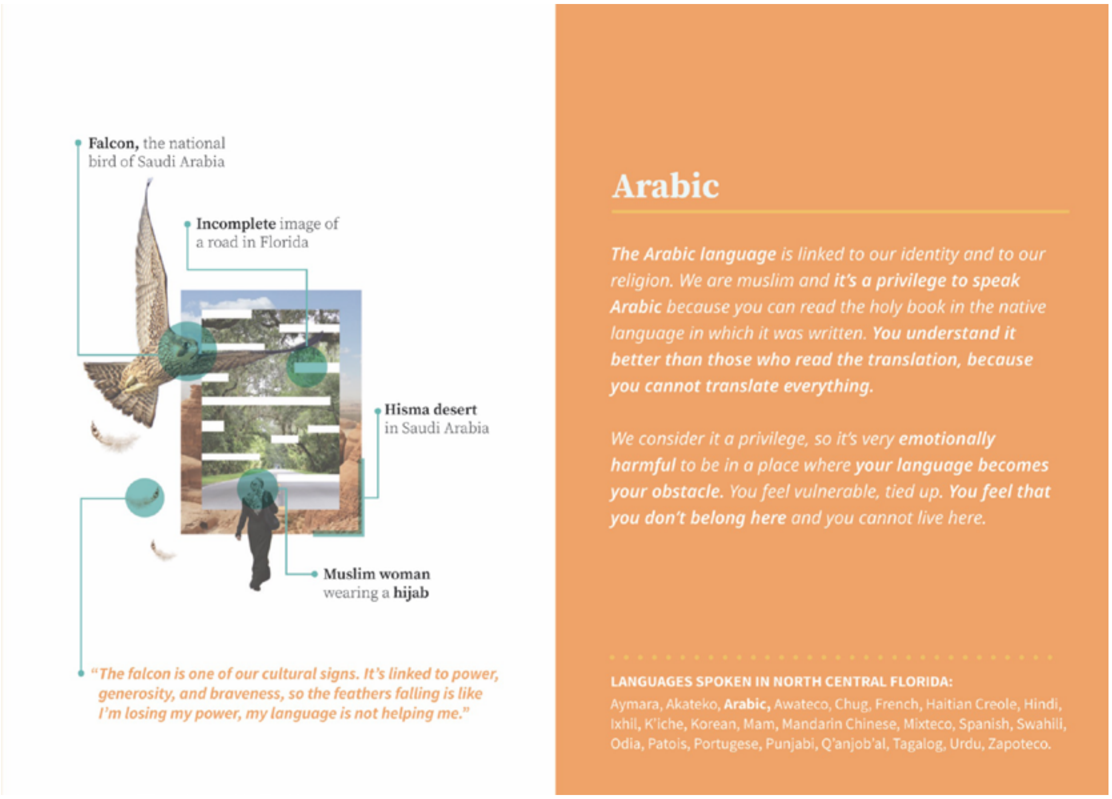


Figure 2. Arabic Collage in English

new one. Collages have a narrative and ambiguous nature where many interpretations can fit (Gonzalez Viveros, 2020). Therefore, the collages potentially "carry much information that may not be directly apparent" (Stappers & Sanders, 2003, p.85) and can work as conversation starters with participants to explore and create new meanings around language justice, migration, and cultural representation. In the case of the Arabic collage, we first used the participant's quotes as inspirations for the collage, and we then used follow-up interviews to get feedback on the original design. In this way, the collages are meant to represent participants' and our (the researchers') shifting and always-evolving perspectives on language justice and its implications on immigrant communities. Creating the collages required an act of translation, where initial interview quotes were transformed into visuals and then revised based on further conversation.

COLLAGE 2 - HAITIAN CREOLE AND FRENCH

Our second interview participant was an immigrant from Haiti who speaks Haitian Creole, French, and English. During her interview, the participant discussed colonization and how it influences language histories, such as the broad use of French in Haiti. During her initial interview, this participant explained that "Haitian Creole is my native and emotional language. Some Haitians are more comfortable expressing themselves in French, so I talk to them in French. I talk to my sister in English and Haitian Creole and my dad in French and Haitian Creole. My language fluctuates depending on the types of interaction that I have." Later in her interview, this participant also discussed the importance of recognizing immigration as a Black issue. She explained, "There is a racist belief circulating in the U.S. that the Black population is only composed of African Americans. This has, in turn, created an assumption that Black people only speak English, so they don't need access to language access services. Moreover, due to Haiti's complex linguistic history (composed of French and Haitian Creole), Haitians who migrate to the U.S. are excluded from various activities. As a result, Haitians living in the U.S. who are not proficient in English do not have access to adequate information." In her collage, we wanted to illustrate the participant's Haitian identity as well as the challenges of not being able to understand information in English in the U.S. Figures 3 and 4 showcase this participant's collage in English, French, and Haitian Creole.

Having conversations around the collages created the space to discuss with participants some cultural particularities they considered important to include visually. In the case of the collage about Haitian Creole and French, for example, we had two versions of the collage with different images of a Black woman. The first one showed a woman from a frontal view wearing a traditional Haitian dress, as depicted in Figures 3 and 4 (on the next page). The second one showed a woman from behind wearing a black tank top, as depicted in Figure 5 (below).

Figure 5. Second image option for Haitian Creole collage

When we first showed both design options to this participant, she mentioned that she preferred the first collage because of the use of the dress as a cultural reference. She also noted that the woman in the second collage didn't look Haitian, as there were no specific features that would signal her Haitian identity. Based on this participant's close association between language, race, and culture, it was important to include an image of a Haitian woman that incorporated cultural elements.

It important to note that including any cultural imagery, such as the Haitian cultural items included in this collage, can run the risk of essentializing and minimizing culture to a single image or figure. As localization and technical communication scholars have long argued, incorporating cultural icons on websites and technical documents can have negative impacts,

Figure 3. Haitian Collage in Haitian Creole

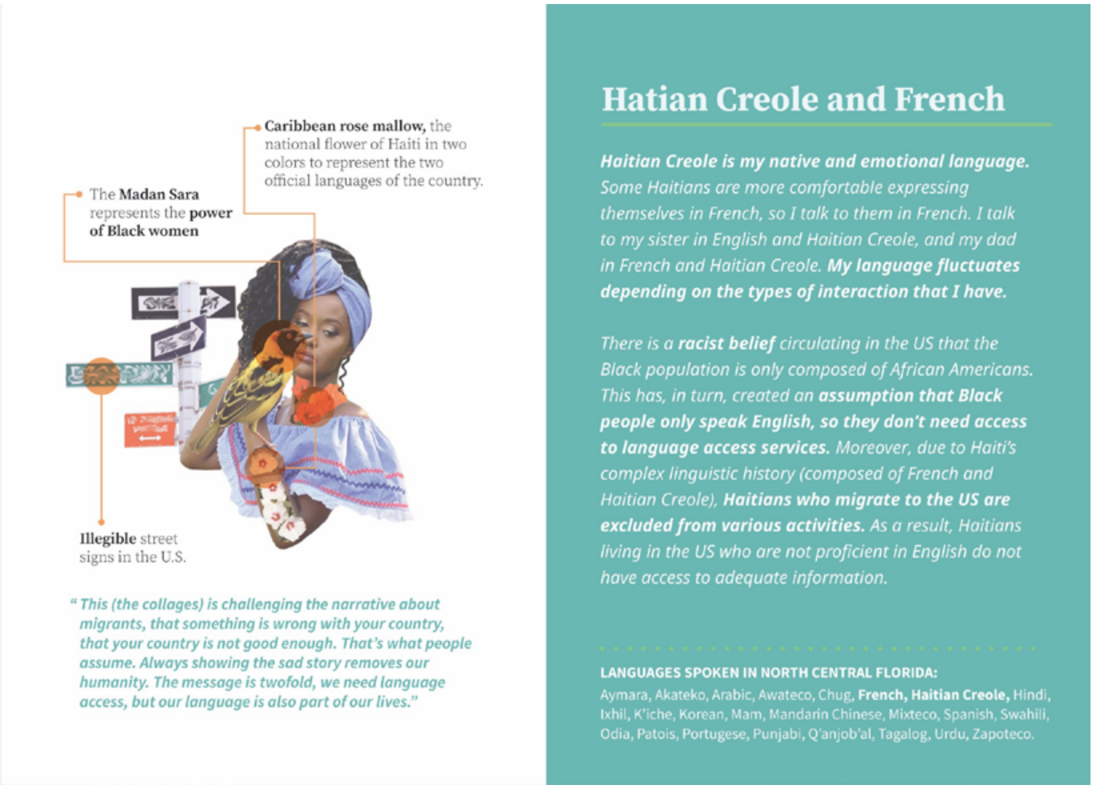


Figure 4. Haitian Collage in English

and can flatten complex cultural dimensions (Medina & Pimentel, 2018; Sun, 2012). Through our participatory design methodology, in creating the collage depicted in Figures 3 and 4, we also learned from our participant about the Karabela dress, a dress traditionally worn by Haitian women to depict their cultural identity. In addition, the collage depicted in Figures 3 and 4 includes an image of the Caribbean rose mallow, the national flower of Haiti. The bird includes two colors, black and yellow, to represent the two official languages of the country. The woman in the collage represented in Figures 3 and 4 is wearing the Madan Sara, which this participant explained represents the power of Black women in her community. In our conversations and interviews with this participant, we learned that it was important for her collage to reflect the strength of Black women, and Haitian women specifically. Like the previous collage related to Arabic, the visual elements and translations encompassed in the collages provided an opportunity to understand how these participants define language justice at both literal and metaphoric levels. The role of visuals in these collages was not to make a caricature out of a culture or language but rather to visually represent the stories of our participants shared in their descriptions of language.

COLLAGE 3 - PUNJABI, ODIA, AND HINDI

Our third collage stemmed from interviews and conversations with a woman from Punjab, India, who currently lives in Gainesville, Florida. During this interview, the participant made connections between her language, culture, and family. She explained "Punjabi is my nurturing language. When my parents were very loving, when they were very mad, they would talk to us in Punjabi. It is the language of love, it is the language of joy and sorrow, and when you really need each other, that's Punjabi." In addition to Punjabi, this participant speaks Odia and Hindi, and she explained that "Odia is the language of community, of making friends with your neighbors. It's a communal language. Hindi is my home language. English is my language of attainment and profession."

During her interview, this participant further explained that while each of the languages she speaks serves a purpose in her life, people who hear her speaking these languages don't always understand this purpose. She stated, "When we're speaking in Hindi or one of my languages, people who are not part of the conversation have felt entitled enough to tell us that we need to learn English and we need to go back to where we came from. We feel violated. I feel outraged. It's heartbreaking that people can be so threatened by something as beautiful as a different language."

In the collage for this participant, like in the other collages, we wanted to illustrate the beauty, complexity, and pain that comes with speaking multiple languages as an immigrant in the U.S. Figures 6 and 7 illustrate the collage for this participant in Punjabi, Odia, and Hindi.

In the case of the stories about Arabic and Haitian Creole, participants made connections between language and other aspects of culture and identity, such as religion and race. However, the process of making and exploring meanings through collages not only allowed us to discuss cultural meanings but also personal ones. An example of how personal experiences might be interwoven with larger cultural signs can be observed in the collage about Punjabi, Odia, and Hindi. While the Indian peacock is the national bird of India, the home country of one of the participants, this participant did not bring up the bird because of its relevance as a national symbol but because it reminded her of her grandfather's home. During her interview, this participant told stories about how she would wake up at her grandfather's home and see many peacocks and how this bird has come to symbolize her home and her multiple languages. Personal experiences might be interwoven with larger cultural signs, and creating the space for interview participants to make design decisions about the images they wanted in their collages led this participant to share the personal relationship she makes between the mustard greens, the peacocks and Punjabi, one of her languages, based on her lived experiences in India. As evidenced in this collage, the metaphor of birds provided an opportunity for the participant to elaborate on the connections between language, home, and culture, and to provide more examples about her own definition of language justice.

LESSONS FROM DESIGNING IN TRANSLATION

Since the goal of the interviews we conducted for this project was to better understand participants' perceptions of and experiences with language

Figure 6. India Collage in Punjabi

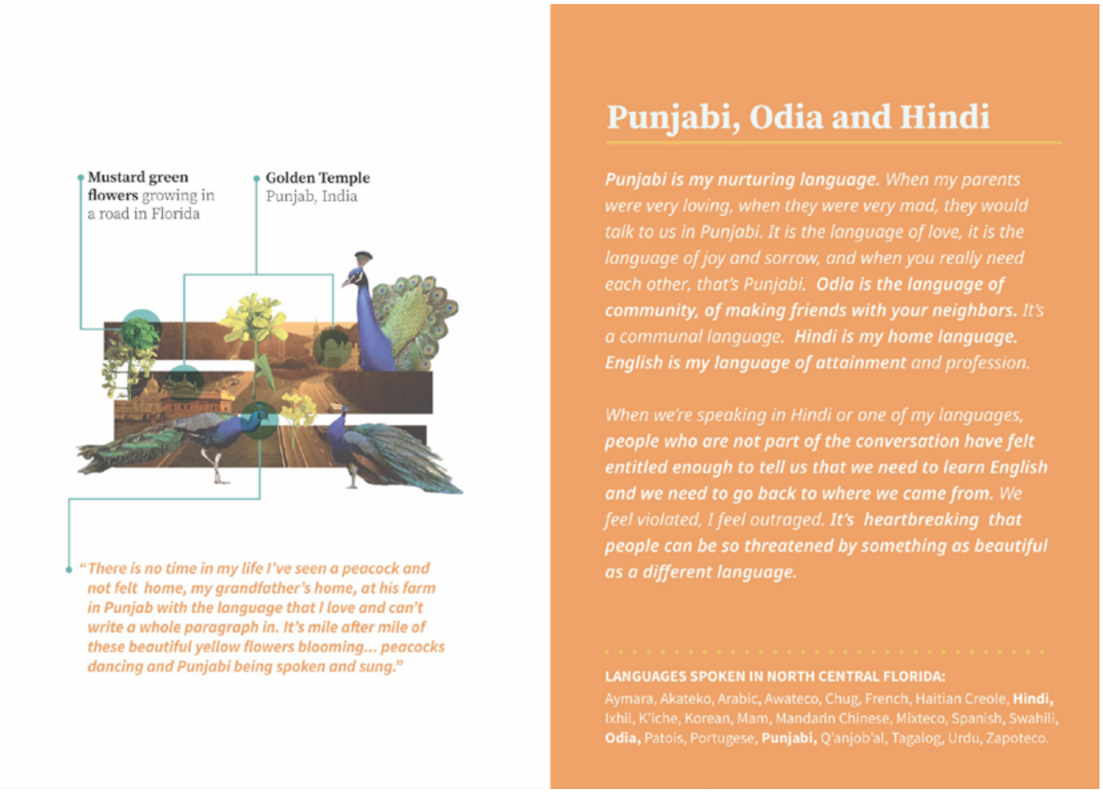


Figure 7. India Collage in English

justice, the process of transforming verbal interviews into collages and of then using collage design to foster more dialogue expanded our conceptions of translation beyond the written word. Indeed, many translation scholars, both within and beyond technical communication, describe translation as a process that requires much more than words and includes visual design (Cardinal et al., 2021; Turner & Gonzales, 2020). In this specific project, collages provided an opportunity to go beyond words to describe complex concepts like language and identity, which allowed for our conversations with participants to gain depth and additional perspective. The participatory approach to the collage design, including gathering participant feedback through various iterations of the collages, also assisted our efforts to avoid the cultural stereotyping that can easily happen when people from a different culture visually represent a culture, language, and/or race that is not their own.

By transforming participants' interviews into collages and by then using participatory methods to (re) design and revise the collages, we as researchers got the opportunity to expand and strengthen conversations about language access. Rather than just listing the languages that participants speak, for example, we got a chance to intricately understand the memories that these languages represent for participants. Through this discussion, we were able to better understand that incorporating participants' languages into technical communication within their city and county would not only allow participants to understand information that they have a right to access but would also allow participants to feel like their memories, histories, and experiences are valued and included in their new community within the U.S.

On a policy and public engagement level, the collages we created were incorporated into several local community events that helped us advocate for the need to increase language access services in our city and county. In collaboration with local community organizations in Gainesville, and specifically, an initiative called the Gainesville Immigrant Neighbor Inclusion Initiative (GINI), we were able to use visual collages to share complex, intricate stories about the importance of language for immigrants in our region. Currently, we are working with a local museum to expand our collages into a larger exhibition about language access in North Central Florida. Having the collages alongside other data points, including but not limited to written data from our interviews, provided a different dimension that strengthened our advocacy efforts. When people do not have time or interest in reading long data reports, collages and other visuals can help technical communicators, designers, and language advocates tell stories about language through the perspectives of multilingual community members.

Because language access encompasses much more than the communication of words, providing opportunities for visual engagement in a discussion of language allows researchers to further engage with all the aspects that language represents to multilingual people. This type of engagement allows us as researchers to make the case that increasing language justice efforts in our community would not only improve communication but can also increase engagement and allow immigrant community members to truly feel like they are a part of their new community.

Incorporating collages and writing in multiple languages into the products we shared from this project (as seen in Figures 1-7) also posed some challenges. For example, while we thought it was important to create multilingual collages that included participants' languages, not all typefaces with the necessary alphabets for these translations were easily available and adaptable in the software Valentina Sierra-Niño used to design these artifacts (InDesign). Besides the technical challenges, in some cases, the visual design of the chosen typefaces was also aligned with the cultural meanings expressed in the postcards. For instance, for the text in Arabic, we used a typeface with curved terminals—the end of the strokes in the letterforms—that resemble the handwritten style associated with how the Quran was originally written instead of a typeface with straight and sharp terminals that would be associated with printed or typed text. In this way, the visual representation of participants' interviews extended both to the visuals in the collages and to the typefaces used to represent participants' input.

The interviews themselves took place in English but often included content in other languages. They required us as researchers to navigate various translation tools and work in close collaboration with our participants to translate and localize the information that made it to the final design. As scholars have noted, many current digital tools do not facilitate multilingual communication, posing increasing challenges for

technical communicators and designers engaged in multilingual research (Gil & Ortega, 2016). Thus, incorporating opportunities for participatory translation and collaboration across languages between researchers and participants becomes increasingly important.

Finally, incorporating visual collages in our interviews about language access allowed us to more clearly understand the complexity of languages and what they mean to multilingual communities. Like birds, which we used in the collages, some languages migrate from country to country alongside their speakers. Some languages become synonymous with the land(s) on which they are spoken, while other languages are completely erased through colonization, racism, and xenophobia. Language is not something that can be contained in words nor something that can be described as separate from the humans who use it, the cultures that foster it, and the communities that continue to evolve it. For this reason, incorporating visuals into a project about language justice allowed us to better understand the many layers of meaning that language elicits from those with experience navigating multilingualism. Through this process of design and dialogue, we were able to advocate for and with our multilingual participants by showcasing how language is tied to our community's needs, identities, and hopes for the future.

CONCLUSION

As technical communicators continue collaborating with designers and with multilingual communities, it is important that we continue developing frameworks for expanding our methods of communication across languages, cultures, and contexts. Furthermore, as technical communicators collaborate with various community organizations to advocate for language rights, visual design and participatory methodologies can provide important avenues for strengthening our collective advocacy efforts. Often, writing clear and detailed technical documentation can help strengthen the work that community organizations do. At the same time, pairing our technical writing skills with participatory methods and visual design can provide additional avenues for telling and documenting stories that have a long-term impact on our communities. In this article, we present examples of how transdisciplinary collaborations among designers and technical communicators can open up opportunities for dialogue and mutual understanding. The work we represent in the article is just one piece of a broader project that continues to be shared with various stakeholders in and beyond our local community. We encourage other technical communication and design researchers to implement visual data approaches in their work, particularly when working with participants whose language histories span beyond white American Englishes.

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A Framework for Understanding Cognitive Biases in Technical Communication

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ABSTRACT

Purpose: The communication of technical information is often susceptible to cognitive biases. Technical communicators need to understand cognitive biases and know how to tackle them accordingly. This article devises a framework of principles that provides technical communicators an operable affordance and a vocabulary to approach cognitive biases and to communicate empathetically.

Method: I review a vast body of literature in technical communication with a focus on problems caused by cognitive biases. This work reveals significant problems in information visualization that can provide for a nuanced discussion on cognitive biases in technical communication. Using these problems as a guide, I draw upon cognitive theories in how people use information, the prospect theory about how people make decisions, and the self-determination theory about how such decisions are influenced by the social context. I then assemble a framework of principles that illuminates the workings of cognitive biases. I extrapolate sample questions that technical communicators can use to examine cognitive biases in information visualization and technical communication.

Results: The framework of principles explains how cognitive biases affect technical communication. These principles are useful for gaining a deeper understanding of users from a cognitive bias perspective and optimizing for empathetic communication.

Conclusion: Technical communicators and users are prone to cognitive biases. The framework of principles, cognitive biases, and sample questions presented in this article provide technical communicators a new lens to examine their work and improve user experience.

Keywords: Cognitive biases, Technical communication, Information use, User experience, Users

Practitioner's Takeaway

- Use the framework of principles to understand what triggers cognitive biases
- Articulate various cognitive biases and how they affect technical communicators and users
- Understand the role of cognitive biases in information visualization
- Ask effective questions to investigate, mitigate, and harness cognitive biases.

INTRODUCTION

We live in a world of complex information. How we interact with information and make sound judgments are of paramount importance to technical communicators. Yet, the human brain is not hardwired to cope with this dynamic array of information (Levitin, 2014). Much like our hunter-gatherer forbearers, we seek the shortest path and the least effort to digest information and solve problems. This is because the human attention span is limited, and memory is often inaccurate (Levitin, 2014). We allow unhelpful information to inundate our judgments, and we do not easily let go of established beliefs in the face of disconfirming evidence (Korteling et al., 2018). These phenomena are manifestations of cognitive biases: Mental shortcuts that cause humans to deviate from rational judgments (Kahneman, 2011). There is a vast body of scholarship on cognitive biases, originating in cognitive psychology (Kahneman, 2011) and growing in technical communication (Zhou, 2020).

Cognitive psychologists have yielded great insights into systems of human thinking (Kahneman, 2011; Levitin, 2014), cognitive illusions (Chabris & Simons, 2010), and the inner workings of the human brain (Bar, 2007; Korteling et al., 2018; Kosslyn et al., 2012). These insights provide a theoretical foundation that can guide technical communicators to understand cognitive biases in their work.

Because technical communication is deeply rooted in rhetoric, understanding cognition and cognitive biases are essential for effective and empathetic communication. Early technical communication work focused on the perceptual level of information use (Schultz & Spyridakis, 2004; Kostelnick & Roberts, 2010). It examined how people respond to stimuli, decode visual cues, and retain information. It adapted cognitive and psychological theories such as the Gestalt theory and those that explain pre-attentive processing and memory formation (Kostelnick & Roberts, 2010). This scholarship generated communication guidelines that are "universal" in the sense that they revolve around the physical and neurological traits all humans share. For this reason, however, it largely left out the lived experiences of the communicator and the user.

Technical communicators recognize that cognition can profoundly entangle a person's experience, beliefs, and other contextual factors (Rawlins & Wilson, 2014; Verhulsdonck & Shalamova, 2019; Zhou, 2020). Some of their work explicitly addresses cognitive biases. Zhou (2020) introduces numerous cognitive biases that affect how users interact with technical and professional information. Verhulsdonck and Shalamova (2019) showed that designs infused with aspects of cognition can nudge users to adopt constructive behaviors. St. Amant (2017) showed how users' mental models, culminated through their lived experiences, guide them to recognize rhetorical situations. Indeed, many areas in technical communication already tackle the tacit effects of cognitive biases, often without the formal use of relevant literature.

One such area heavily studied with regard to cognitive biases is information visualization (Ellis, 2018; Xiong, 2020; Harford, 2021; Wesslen et al., 2022). Information visualization embodies a vast network of technical communication practices. It requires complex rhetorical work (Rawlins & Wilson, 2014) and is prone to cognitive biases (Harford, 2021; Kostelnick, 2016). As such, information visualization presents a nuanced scene to understand cognitive biases in technical communication, and it is the focus of my discussion.

My work covers a broad scope of technical communication literature in major journals and professional sources, focusing on scholarship that directly or tacitly addresses problems that demand an understanding of cognitive biases. This review revealed significant interactions between information visualization and cognitive biases. I then used these problems to guide my search for insights into cognitive psychology that can, in turn, address challenges in technical communication. My work led me to assemble a framework of principles as an explainer of how cognitive biases occur. I then demonstrate how technical communicators can use this framework to analyze and alleviate problems caused by cognitive biases. As I do so, I extrapolate sample questions that can be useful for a broad range of technical communication work.

INFORMATION VISUALIZATION AND COGNITIVE BIASES

Scholars like Tufte (1983) and Kostelnick (2010, 2016) laid the foundation for the design of visual language and communication. Furthering their efforts, scholars

expanded their study by encompassing the rhetorical decisions and the nuanced contexts in information visualization (Rawlins & Wilson, 2014). They have brought forth several issues that need to be addressed from a cognitive bias perspective.

Scholars converge on the notion that information visualizations are not a pure, objective representation of reality (Kosnelnick, 2016). They are stories (Lindgren, 2021), arguments (Roundtree, 2013), presences (Perelman & Olbrechts-Tyteca, 1969), inventions (Wolfe, 2015), and "humanizing displays" (Dragga & Voss, 2001). While the average user might be inclined to see visualizations as "objective facts" (Cairo, 2019), information visualizations reflect nuanced decisions made by data gatherers, analysts, technical communicators, and others throughout the production process from data gathering to visualization design (Rawlins & Wilson, 2014). In fact, by the time the data arrives at the desk of the technical communicator, it already embodies many subjective decisions made earlier. Such decisions could be as critical as whose data is included and what variables of the data are gathered (Harford, 2021). The user shares "authorial agency," for they bring their own goals and backgrounds into their interaction with information visualizations (Rawlins & Wilson, 2014). These processes and interactions are susceptible to cognitive biases (Ellis, 2018; Harford, 2021).

Wolfe (2015) presented the notion of interpretive levels in visualizations, suggesting that data can focus on one interpretation while marginalizing other interpretations. Lindgren (2001) echoes this notion that visualizations often tell stories that are pivoted toward particular perspectives. Given its prevalence in everyday life, information visualization can cast a larger impact on private and public life that should not be underestimated (Cairo, 2019). Clearly, the need to consider cognitive biases in information visualization is meaningful and urgent. Effective visualizations must embody a contextual and dynamic understanding of the story they present and the cognitive biases at play (Kostelnick, 2016).

To understand this rhetorical nuance, scholars call for user involvement in evaluating visualizations (Stephens et al., 2015). But the means by which scholars seek to understand users do not often drill deep. Developing the kind of rhetorical acuteness so much called for requires technical communicators to listen to the users' inner reasonings, reactions, and guiding principles of their actions (Young, 2015). That is to say that technical communicators should know what happens before and during the user's interaction with a visualization. However, the user is often asked to provide feedback after interacting with a visualization (Stephens et al., 2015). They are typically asked to provide opinions about visualizations, confirm statements supplied by the researcher, or make design suggestions (Stephens et al., 2015). These approaches do not effectively uncover the user's prior knowledge and background that could introduce cognitive biases. Nor can they incorporate such knowledge in the development of visualizations. My work tries to offer technical communicators ways to investigate this backstory to the extent that it addresses cognitive biases.

Another issue of growing interest is how information visualization can help users assess risks and uncertainties (Kostelnick et al., 2013; Zhang et al., 2015; Zuk & Carpendale, 2007; Wesslen et al., 2022). Visualizations can help doctors weigh the pros and cons of treatments (Harford, 2021) and retirees to choose investment plans (Wesslen et al., 2022). They can amplify overconfidence but can also boost confidence where it is needed (Xiong et al., 2020). They can help users refrain from hindsight (Xiong et al., 2020). Wesslen et al. (2022) found that visualizations that show the expected return of alternative investment strategies helped users make more optimal decisions. They noted that visualizations such as bar charts and interval plots reduce loss aversion, while hypothetical outcome plots and dot plots increase loss aversion. They also found that some users rely on "peak" data, such as best returns and negative bars, to make investment decisions. When it comes to assessing the prospect, the type of visualization and visualizing strategy matter significantly (Wesslen et al., 2022).

In addition, the use of visualization to convey environmental (Stephens et al., 2015) and public health risks (Vershuldonck & Shah, 2021) spurs questions about how to help users realistically assess the prospect of emerging problems and, at times, how to grapple with a skeptical audience. Informing and persuading a skeptical audience holds exciting potential in the interests of both individuals and society.

Some scholarship further suggests that information visualization can nudge users to change their behavior (Verhulsdonck & Shah, 2021). The idea of nudging, popularized by Thaler and Sunstein (2009), is that

designers can use tiny ways to prompt users to adopt behaviors without restricting users' freedom of choice. Verhulsdonck and Shah (2021) show that COVID-19 visualizations can be customized to specific types of users to nudge them to make constructive decisions. The idea of behavior change can be ground-breaking, but it is also risky without a solid understanding of the cognitive biases it is prone to.

Furthermore, scholars have turned to the issue of information visualizations conveying social data through big data and emerging technologies. Visualizations can present the larger reality beyond any individual user's anecdotal experience. For example, customer-facing documents such as utility bills now include much more than transactional details (Delin et al., 2006; Brühl, 2019). Using visualizations, these otherwise mundane documents inform customers of their energy use and that of their neighbors and can influence customer behavior (Brühl, 2019). Visualizing social data is another area where technical communication practice is ahead of its scholarship. It spurs questions about how such social data is gathered, what is and is not presented, and how such visualizations trigger known cognitive biases in social settings (Gray et al., 2018). The use of social data also spurs questions about ethics. The literature on "dark UX patterns" has well-documented unethical practices (Gray et al., 2018).

As I furthered my research, I specifically focused on how cognitive biases affect the rhetorical context of information use, as well as the assessment of prospect and the influence of the social context. This effort explained in the next section has helped me narrow down to cognitive theories that address problems in technical communication.

THEORETICAL UNDERPINNINGS OF COGNITIVE BIASES

To articulate pertinent theories of cognitive biases, I first turn to the Nobel laureate psychologist Kahneman's (2011) theory of the dual systems of thinking, a fundamental cornerstone in the study of cognitive biases. In *Thinking: Fast and Slow*, Kahneman (2011) suggests that humans use two systems of thinking in making decisions. System 1 thinking is used to make fast, intuitive, and effortless judgments. People rely on this system most often to conduct everyday matters. System 2 thinking is used to make careful, analytical, and effortful judgments. System 2 is often activated to respond to complex situations. Because humans tend to use the least cognitive resources possible to achieve their goals, they are susceptible to cognitive biases (Kahneman, 2011).

Both thinking systems produce many illusions. In *The Invisible Gorilla*, Chabris and Simons (2010) reveal six illusions that drive cognitive biases. Humans succumb to the illusions of attention (that we pay attention to more than we do), memory (that our memories are more robust than they are), confidence (that confident people are competent), knowledge (that we know more than we really do), cause (that coincidences and correlations demonstrate causation), and potential (that our brain can unlock vast reserves of power). This characterization of illusions helps explain cognitive biases in human activities. Still much remains to be discerned about the mechanisms that produce such illusions.

In searching for these mechanisms, Korteling et al. (2018) proposed a neural network framework based on intrinsic brain functions, those that are optimized to perform the perceptual motor skills of human ancestors (System 1). This framework consists of four principles: Association, Compatibility, Retainment, and Focus. Association explains "our inclinations to associate and combine (unrelated) information"; Compatibility explains our inclination to "prioritize information that is compatible with our present state"; Retainment explains our inclinations to "retain given information that sometimes could better be ignored"; and Focus explains our inclinations to "focus dominant information while ignoring relevant information that is not directly activated" (p. 1). Complementary rather than mutually exclusive, these four principles explain the workings of a great many cognitive biases.

Bar (2007) brought a similar perspective to understanding human cognition in information use. He suggests that humans approach information by first associating it with representations in their memory. If they find an analogy, they then make predictions to guide their subsequent actions. From this theory arise three concepts that are reminiscent of Korteling et al.'s (2018) framework: Association, Analogy, and Prediction. The brain searches for not only "what it is" but "what it is like," a process of analogy-making rather than merely recognition and recall. This point echoes

technical communication work (St. Amant, 2017). Like the aforementioned principle of compatibility, analogy creates a margin of error where human judgment can go awry.

Kosslyn et al. (2012) proposed eight cognitive communication principles for human information use. When users encode information, they need to identify clear patterns (the principle of discriminability), organize information into sense-making clusters (perceptual organization), and focus their attention on important matters (salience). The user then integrates new information into working memory, during which they retain limited information (limited capacity) and are sensitive to changes (informative change). When accessing long-term memory, the user needs relevant prior knowledge (appropriate knowledge), searches for compatible memories (compatibility), and expects only relevant information without redundancies (relevance).

The scholarship on cognition and information use roughly converges on the principles of Association, Compatibility, Retainment, and Focus. Although these principles are essential for technical communicators, they are incomplete in addressing emerging problems in technical communication. For example, they do not shed much light on how cognitive biases affect decisions about the future, as Korteling et al. (2018) acknowledged and I discussed earlier. Also missing is the exploration of the role social context plays in information use. For these aspects, I turn to two other theories.

An array of cognitive biases exists in the realm of human decisions about the future. These decisions frequently involve assessing potential gains and losses and deciding whether to stay put or to change course. Much scholarly discussion on this topic was set forth by the landmark essay “Prospect Theory: An Analysis of Decision under Risk” (Kahneman & Tversky, 1979). Considered “the best available description” of human risk evaluation, prospect theory suggests that humans tend to weigh losses more significantly than gains of equal size (Barberis, 2013, p. 173), a cognitive bias known as loss aversion, a point to which I shall return.

More importantly, what is considered loss or gain depends on a reference point that is a moving target. Often the reference point is the status quo, giving us the status quo bias, a tendency to favor the current state over alternative states. One effect of the status-quo bias is that humans often favor what they have over what they do not have of equal value (Tversky & Kahneman, 1991). They are found to demand twice as much to sell what they have than to acquire it (Thaler & Sunstein, 2009). This phenomenon is known as the endowment effect (Thaler & Sunstein, 2009). Prospect theory has been extensively applied in economic behavior and has recently intrigued technical communicators and user experience professionals (Harley, 2016; Luo et al., 2021). For our users, assessing the prospect of their actions and goals is a routine part of their information use. It is therefore crucial to find out how users decide to stay in the status quo or enact change, to opt-in or out, to expect gain or prevent loss. For these reasons, I consider Prospect a pillar in the understanding of cognitive biases.

Furthermore, one approach that forms part of the bedrock for studying the effects of social contexts on human behavior is the Self-Determination theory (Deci & Ryan, 1985; Peters et al., 2018). This well-validated theory identifies three keys to human motivation and engagement: autonomy (having agency to pursue one’s goals), competence (having the ability to pursue one’s goals), and relatedness (having the social support to pursue one’s goals). In particular, relatedness refers to connections with others and a sense of belonging. It comes into play when, for example, websites warn users of goods going out of stock, social media shows what the user has missed out on, or businesses employ dark UX patterns to deceive users (Gray et al., 2018). Relatedness provides the frame by which we can understand the effects of social contexts and the cognitive biases they spawn.

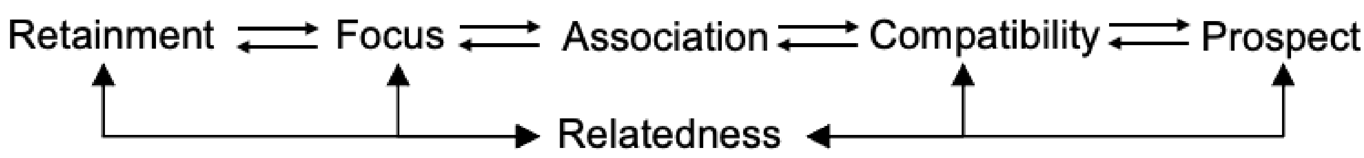

Figure 1. A Framework of Principles to Understand Cognitive Biases

A COGNITIVE FRAMEWORK

Based on the literature in technical communication and cognitive biases, I assemble six principles that can help technical communicators understand cognitive biases in their work: Retainment, Focus, Association, Compatibility, Prospect, Relatedness (RFACPR). Instead of following Korteling et al.'s (2018) unordered list of principles, I assemble my principles with the aim to map them to a typical scene of technical communication. As shown in Figure 1, when a user comes into contact with new information, they retain more than what helps them (retainment, Kosslyn et al., 2012); they are drawn to prominent information that takes their attention away from other information (focus); they then associate new information with past experience that is exactly or metaphorically compatible (association and compatibility); after that, they must anticipate the future outcome and decide on their next move (prospect); throughout this journey, the user is susceptible to the influence of social surroundings (relatedness). This scene follows the general phases the user takes to respond to the present, retrieve the past, and determine the future. These phases are not necessarily linear, but they provide some affordances to understand cognitive activities in technical communication.

In this section, I exemplify cognitive biases that are best represented by each of the six principles. A list of the definitions of the principles and biases can be found in Table 1. I then analyze the application of the principles in information visualization with examples. I extrapolate a set of questions, shown in Table 2, that technical communicators can use in their research of the user and context. These questions for information visualization can be adapted to a plethora of technical communication activities.

Retainment

The Retainment principle refers to the human tendency to integrate helpful information with unhelpful information indiscriminately (Korteling et al., 2018). Research has repeatedly dispelled the belief that the more information we receive, the better we make decisions. On the contrary, too much information dissipates our attention on productive information and exhausts our cognitive resources (Thaler & Sunstein, 2009; Levitin, 2014). Retainment interferes with our memory formation as it blurs the boundary between new and past experiences (Kosslyn & Koenig, 1992). Human memory, after all, is not an objective and complete chronicle of past events but the result of continual enrichment and alteration (Levitin, 2014). The Retainment principle manifests itself in the anchoring bias, the endowment bias, the hindsight bias, the outcome bias, the Dunning Kruger effect, and the overconfidence bias (Korteling et al., 2018).

Anchoring

The anchoring bias refers to the human tendency to make judgments based on the first piece of information (Kahneman, 2011; Korteling et al., 2018). Often the information we come across first serves as the "anchor" to subsequent interpretations (Zhou, 2020).

Hindsight

The hindsight bias refers to the human tendency to perceive a past event as easily predictable (Mohanani et al., 2018). This "knew-it-all-along" bias happens because humans crave an orderly and predictable world (Chabris & Simons, 2010). Upon knowing the outcome of an unpredictable event, we distort memory to create a coherent story to make sense.

Outcome

The outcome bias refers to the human tendency to judge an event based on its outcome rather than its overall development (Baron & Hershey, 1988). This is because the outcome is often more salient and easier to remember than the murky process.

Dunning-Kruger and Overconfidence

These two biases revolve around the idea that the human sense of confidence can be misaligned with competence. The Dunning-Kruger bias refers to the tendency for less knowledgeable people to overestimate their competence and more knowledgeable people to underestimate theirs (Kruger & Dunning, 1999). The overconfidence bias refers to the human tendency to overestimate their competence (Kruger & Dunning, 1999).

Understanding retainment can help technical communicators tackle a major problem in information visualization: the need to provide appropriate data provenance (Stephens et al., 2015; Richards, 2018; Lindgren, 2021). Data provenance include data sources, collection criteria, inclusivity, and other "known unknowns" (Lindgren, 2021). It might be seen as

A Framework for Understanding Cognitive Biases

Table 1. Principles and Cognitive Biases

Phase	Principle	Definition of Principle	Cognitive Bias	Definition of Bias
Present	Retainment	Integrate helpful information with unhelpful information indiscriminately	Anchoring	Make judgements based on the first piece of information
			Hindsight	Perceive a past event as easily predictable
			Outcome	Judge an event based on its outcome rather than its overall development
			Dunning Kruger	Less knowledgeable people overestimate their competence and more knowledgeable people underestimate theirs
			Overconfidence	Overestimate one’s competence
	Focus	Place greater emphases on dominant information while ignoring other relevant information	Availability	Make judgements based on the information that is easiest to recall
			Recency	Make judgements based on the most recent information
			Peak-end	Judge an experience primarily by its peak and end
			Negativity	Dwell on negative events more than positive events
			Rosy retrospection	Recall past events more fondly than one felt at the time of occurrence
			Survivorship	Judge people and events based on the those that survived
Past	Association	Search for coherent patterns and relationships in information	Control illusion	Overestimate one’s ability to control events
			Spurious causality	Mistake correlation for causation
			Representativeness	Estimate the likelihood of an event based on characteristics stereotypical to the beholder
			Base rate fallacy	Estimate the likelihood of an event by its stereotypical characteristics rather than its original probability
			Conjunction fallacy	Assign a higher probability to two conditions occurring in conjunction than either one occurring alone
			Story	Make judgements through stories of human interest
	Compatibility	Recognize and accept information that is consistent with existing knowledge and beliefs	Confirmation	Accept information that confirms existing beliefs, attitudes, and opinions
			Priming	Make judgements unconsciously under the influence of stimuli
			Fluency	Assign higher value to information that can be processed easily
			Familiarity	Regard familiar information as more convincing than unfamiliar information

Table 1. Principles and Cognitive Biases

Phase	Principle	Definition of Principle	Cognitive Bias	Definition of Bias
Future	Prospect	Determine a future act by assessing gains and losses	Loss aversion	Avoid losses in favor of gains of equal amount
			Status-quo	Prefer current state over alternative states
			Endowment	Value an object one owns more than one would when they don't own it
			Sunk cost fallacy	Stay on the path one has invested in
			Framing	Make judgements based on how the information is framed
Context	Relatedness	Need to feel connected with and approved by others	Scarcity	Consider items with limited availability more attractive
			Bandwagon	Think and behave as one perceives others do
			Social desirability	Conduct oneself in a way that pleases others
			Group think	Conform to a group consensus
			Fear of missing out	Feel anxiety that one is absent from others' experiences

supplemental, but it can be crucial. A vivid example is the comparison of COVID-19 cases among several countries in Figure 2 (Hasell et al., 2020; Lindgren, 2021). COVID-19 case count in the U.S. significantly lagged behind that in South Korea in early March 2020, but rapidly exceeded it in late March that year. If the visualization shows just case counts, the user might succumb to this anchoring effect and see new infections as the only source of the increase in cases. Nevertheless, the disparities in testing efforts between the U.S. and South Korea largely explain this startling change (Lindgren, 2021). Visualizing the disparities offer crucial data provenance.

Just as important is the designer's decision to focus on "confirmed cases," a term that is not to be confused with a general concept of cases which can include probable cases (Lindgren, 2021). Everyday users might understandably not think of such specialized language in public health.

Figure 2 ought to remind technical communicators to look beyond the data at hand. Lying hidden are the data provenance and the precondition that generates data. Thinking critically can help mitigate the overconfidence bias in technical communicators. Visualizing such data provenance can mitigate the Dunning-Kruger effect on users, preventing them from rushing to conclusions.

Focus

The principle of Focus refers to the human tendency to place greater emphasis on dominant information while ignoring other relevant information (Korteling et al., 2018). Kahneman (2011) described this phenomenon as "what you see is all there is." The human brain works like a magnifying glass (Chabris & Simons, 2010). Our attention is drawn to information that is readily available, visually salient, or mentally stimulating. We inadvertently ignore information that is obscured from view (Zhou, 2020). While the aforementioned Retainment principle refers to taking in too much unhelpful information, the Focus principle refers to placing emphases on too little information at the expense of other helpful information. It manifests itself in the availability bias, the recency bias, the peak-end rule, the negativity bias, the rosy retrospection bias, and the survivorship bias.

Availability

The availability bias refers to the human tendency to make judgments based on information that is easiest to recall (Thaler & Sunstein, 2009). Problems arise when

A Framework for Understanding Cognitive Biases

Table 2. Principles, Sample Questions, and Related Biases

Principles and Sample Questions	Related Biases
RETAINMENT: What does the user take in? • What is the user's goal of viewing the visualization? • How does the visualization convey its purpose, context, and intended users? What does it do and not do? • Does the visualization clearly define terms? • How does the visualization convey necessary data provenance, such as source, inclusivity, and granularity? • What is the frame of reference with regard to time, space, etc.? • What are the first elements that attract the user's attention? How do they convey the key message? • How much content should be presented? • Should multiple visuals be presented simultaneously?	Anchoring
• What is the precondition that generates the resulting data? • How is the data gathered and aggregated? • What data is included and excluded? • What dimensions of the data are presented and what are obscured?	Hindsight Outcome
• What does the user know about the type of visualization? • Does the user have adequate skills to use the visualization? • What elements might the user neglect, misunderstand, or underestimate? • Are data provenance and key variables provided to help the user gain appropriate confidence?	Dunning Kruger Overconfidence
FOCUS: What does the user place greater emphases on? • What prior knowledge does the user likely have on the subject? • What are some common misunderstandings? • What events, stories, or images come to the user's mind first and how would the user describe them? • What visual elements can trigger the user's prior experience? • How does the visualization convey pathos, ethos, and logos to direct the user's focus effectively?	Availability
• What recent experience of the user can influence their response to the visualization? • In a group of visualizations, how does the viewing order affect user judgement?	Recency
• What peak and end experiences can influence the user's perception? • How to create a user experience by building peak and end experiences in complex visualizations?	Peak-end Negativity Rosy retrospection
• What is the broader reality beyond the limits of the available data? How to inform the user of this broader reality? • What data sources have been voluntarily, involuntarily, intentionally, or inadvertently eliminated?	Survivorship

Table 2. Principles, Sample Questions, and Related Biases

Principles and Sample Questions	Related Biases
ASSOCIATION: What prior knowledge and experience does the user search for?	
• What appropriate control should be provided to the user, by interactivity, customization, and other means?	Control illusion
• How to avoid correlational data being mistaken as causal relationships? What other variables need to be considered?	Spurious causality
• What gives the user representative perceptions? How would the user describe and visualize them?	Representativeness
• How does the visualization explain the base rate of the data?	Base rate fallacy Conjunction fallacy
• What dominant stories likely affect the user? • How could stories of personal and emotional significance create misunderstandings? • How can the visualization reveal a reality that reflects its true probability?	Story
COMPATIBILITY: How does the user find consistent knowledge and experience?	
• What preexisting beliefs does the user hold on the subject? How would the user describe them?	Confirmation
• How do visual elements affect the user's instinctive response and subsequent interactions? • How can visual elements help set the user on the constructive course?	Priming
• How familiar is the user with the subject and the type of visualization? • How does the visualization speak to the user's local contexts and familiar scenarios?	Fluency Familiarity
PROSPECT: How does the user assess gain and loss to make decisions?	
• What is the user's perceived risk level on the subject? • What type of visualization can help the user realistically assess potential gains and losses? • What visual strategies work best to allow the user to see real risks? • What frames of reference can be presented and how do they affect the user's assessment of prospect?	Loss aversion
• How does the user consider their vested effort? • How does the visualization describe the viability of alternatives to the status-quo to help the user determine their course of action?	Status-quo Endowment effect Sunk cost fallacy
• Can positive or negative framing foster constructive use of the visualization? How would the user (mis)interpret such framings?	Framing
RELATEDNESS: How does the social context affect the user?	
• What is the ethical reason for conveying social data? • Does the use of scarcity provide meaningful information and prompt constructive user behavior? • Is the scarcity depicted without distortions of the data provenance?	Scarcity Fear of missing out
• Where and how can visualizations help the user beware of the impacts of their actions? • Whose opinions and actions are presented or omitted? • Are different opinions and actions given appropriate weight?	Bandwagon effect Social desirability Group think

that information is not helpful or is incomplete. Thaler and Sunstein (2009) demonstrated that people are more likely to purchase insurance shortly after experiencing a natural disaster because the traumatic experience became the most available information.

Recency

The recency bias refers to the human tendency to make judgments based on the most recent information (Mohanani et al., 2018). Our short-term memory captures and stores a small number of items for a short time (Chabris & Simons, 2010). As such, we end up disregarding important information we encounter earlier.

Peak-end

The peak-end rule refers to the human tendency to judge an experience primarily by its peak and end (Kahneman et al., 1993; Cockburn et al., 2015). Kahneman et al. (1993) discovered that patients judged their experience of pain disproportionately by the peak and end rather than by the actual amount of pain they felt.

Negativity and Rosy Retrospection

The negativity bias refers to the human tendency to dwell on negative events more than positive events (Wu, 2013). Negative events can become anchors, peaks, and ends that trigger the aforementioned biases. On the other hand, rosy retrospection refers to the human tendency to recall past events more fondly than one felt at the time of occurrence (Mitchell & Thompson, 1994).

Survivorship

The survivorship bias refers to the human tendency to judge people and events based on those that survived (Ellenberg, 2014). Harford (2021) documents a World War II case in which some bombers laden with bullet holes successfully returned while others did not. After examining the areas struck by bullets, engineers realized that the other areas that were not struck by bullets may hold the key. It may well be that the bombers that did not return were struck in these other areas.

In information visualization, the focus should be drawn to elements most conducive in understanding the message. When it comes to cognitive biases, a

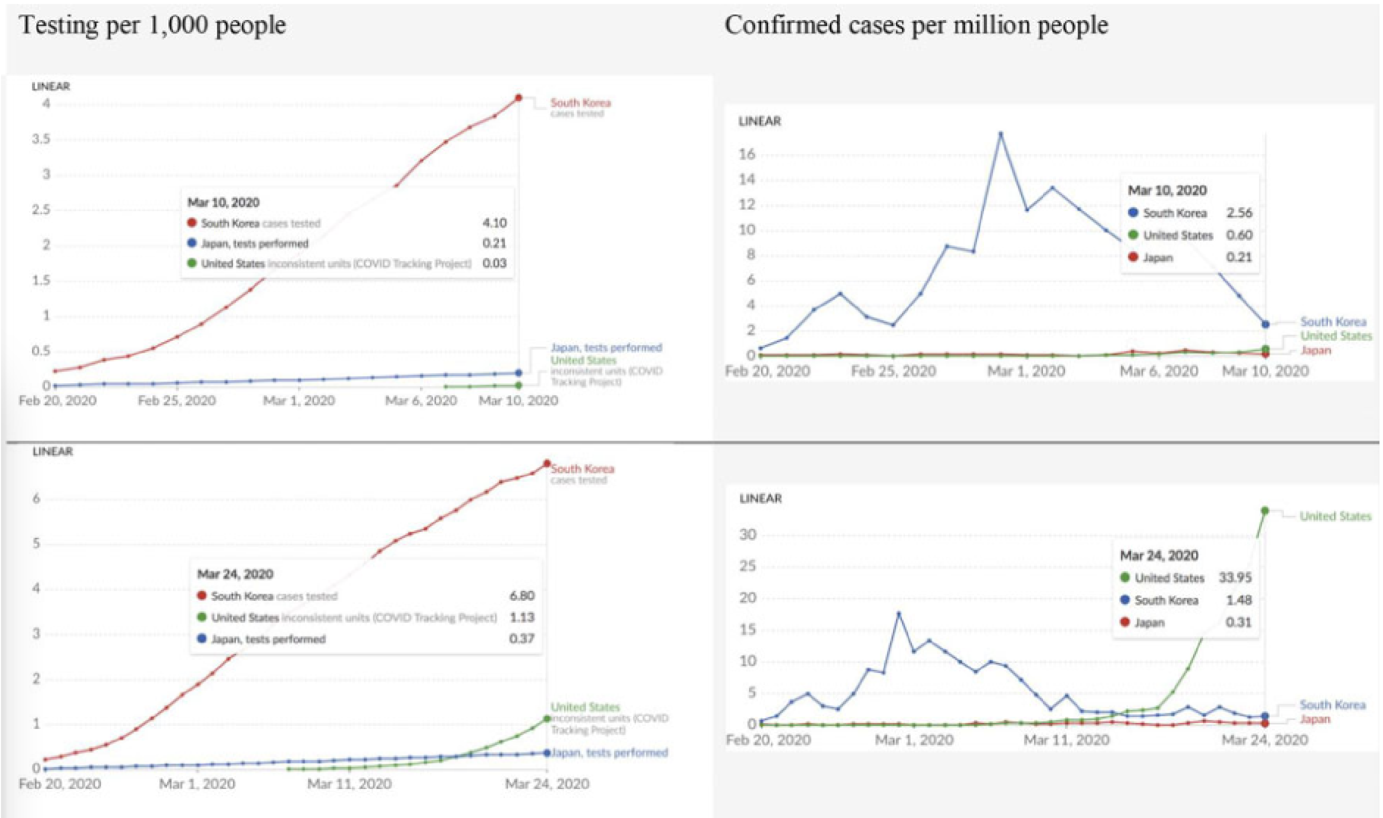

Figure 2. A Comparison of COVID-19 confirmed cases and testing efforts (Hasell et al., 2020)

shallow audience analysis must give way to deeper probing of the events, stories, and images that come to the user's mind first. It is only through this probing that the technical communicator can peek into the user's most available sources, recent experiences, peak and end points, and negative and rosy memories and link them with information visualization. More helpful is to ask the user to articulate these events in detail. Doing so provides a user vocabulary and perspective through which technical communicators can effectively attract, inform, and guide users.

Additionally, one way to mitigate the survivorship bias is to think about what data is not available and what it takes for data to survive. Take Figure 2, for example. Without the information about testing, case numbers alone could trigger the survivorship bias.

Association

The principle of Association refers to the human tendency to search for coherent patterns and relationships in information (Korteling et al., 2018; Bar, 2007). Humans have an innate urge to recognize patterns and perceive relationships in randomness (Levitin, 2014). We tend to construct causality when there is none and sometimes mistake the direction of causality (Schiller, 2019). We often do not have a natural instinct to gauge statistical probability (Thaler & Sunstein, 2009). The principle of Association manifests itself in the control illusion, spurious causality, the representativeness bias, base rate fallacy, conjunction fallacy, and the story bias (Korteling et al., 2018).

Control Illusion

The control illusion refers to the human tendency to overestimate one's ability to control events (Langer, 1975). At the core of this bias is the belief that the outcomes of our actions are due to our skill or competency, not luck or chance (Langer, 1975). When real control is absent, the illusion of control can still keep people engaged in an activity (Langer, 1975).

Spurious Causality

Spurious causality refers to the human tendency to mistake correlation for causation (Chabris & Simons, 2010). It typically happens when one event seems to cause another event, but in reality, both are correlated to a third independent variable. Suppose the data shows the number of falling injuries rising with the consumption of apple cider. Neither falling injuries nor apple cider consumption increases the likelihood of the other, but a third variable, winter, likely causes both variables to rise.

Representativeness

The representativeness bias refers to the human tendency to estimate the likelihood of an event based on characteristics most stereotypical to the beholder (Thaler & Sunstein, 2009; Chabris & Simons, 2010). This pervasive bias causes humans to overestimate the probability of events such as plane crashes or terrorist attacks, in contrast with more mundane events (Thaler & Sunstein, 2009).

Base Rate Fallacy and Conjunction Fallacy

Base rate fallacy refers to the human tendency to estimate the likelihood of an event by its stereotypical characteristics rather than its original probability (Thaler & Sunstein, 2009). The conjunction fallacy is slightly different. It refers to the human tendency to assign a higher probability to two conditions occurring in conjunction than either one occurring alone (Tversky & Kahneman, 1983). An infamous example of these biases is the "Linda problem." In a Tversky and Kahneman (1983) experiment, participants were asked to assess if Linda, a fictitious woman passionate about women's rights, is more likely to be a bank teller or a bank teller who is active in the feminist movement. The vast majority of participants chose the latter. The problem is that the probability of Linda being both a bank teller and a member of the feminist movement, a conjunct condition, cannot be higher than the probability of her being a bank teller.

Story

The story bias refers to the human tendency to make judgments through stories of human interest (Schiller, 2019). In *Narrative Economics*, Schiller (2019) demonstrates how stories drive major economic and political events. A classic example is the Laffer Curve, a graph that tells a compelling story of how increasing the tax rate might decrease tax revenue. Although economists later questioned its dubious thesis, the elegant Laffer Curve story helped generate political activism in the 1980s in the U.S. (Schiller, 2019).

In information visualization, technical communicators should think about what variables need to be presented to help users differentiate correlation from causation. Figure 3A shows the life expectancy

and the annual cigarette consumption per person above age 14 in many nations (Cairo, 2019). Upon first sight, users might conclude that the more one smokes, the longer one lives. However, what Figure 3A does show is a correlation between the two variables, not causation. Seeing causation leads to spurious causality and conjunction fallacy. The decision to organize the data by just two variables is arbitrary because there are other important variables to consider. For instance, wealthy nations tend to have longer life expectancies (Cairo, 2019). Individuals in these nations might buy cigarettes more. These can be clearly seen in Figure 3B, where income-level is revealed (Cairo, 2019). The positive correlation looks even weaker when countries are separated by income-level into three charts (Figure 3C), a recommended strategy of side-by-side display of multiple data angles (Cairo, 2019).

Finally, in Figure 3D, the correlation becomes rightfully negative (Cairo, 2019). Lumping the data by nation tends to convolute socioeconomic factors. Instead, Figure 3D focuses on individuals. An 80-year-old cigarette smoker has just about half the survival rate of a non-smoker or someone who stopped smoking years ago (Cairo, 2019).

This example shows that technical communicators ought to investigate ways that a false association

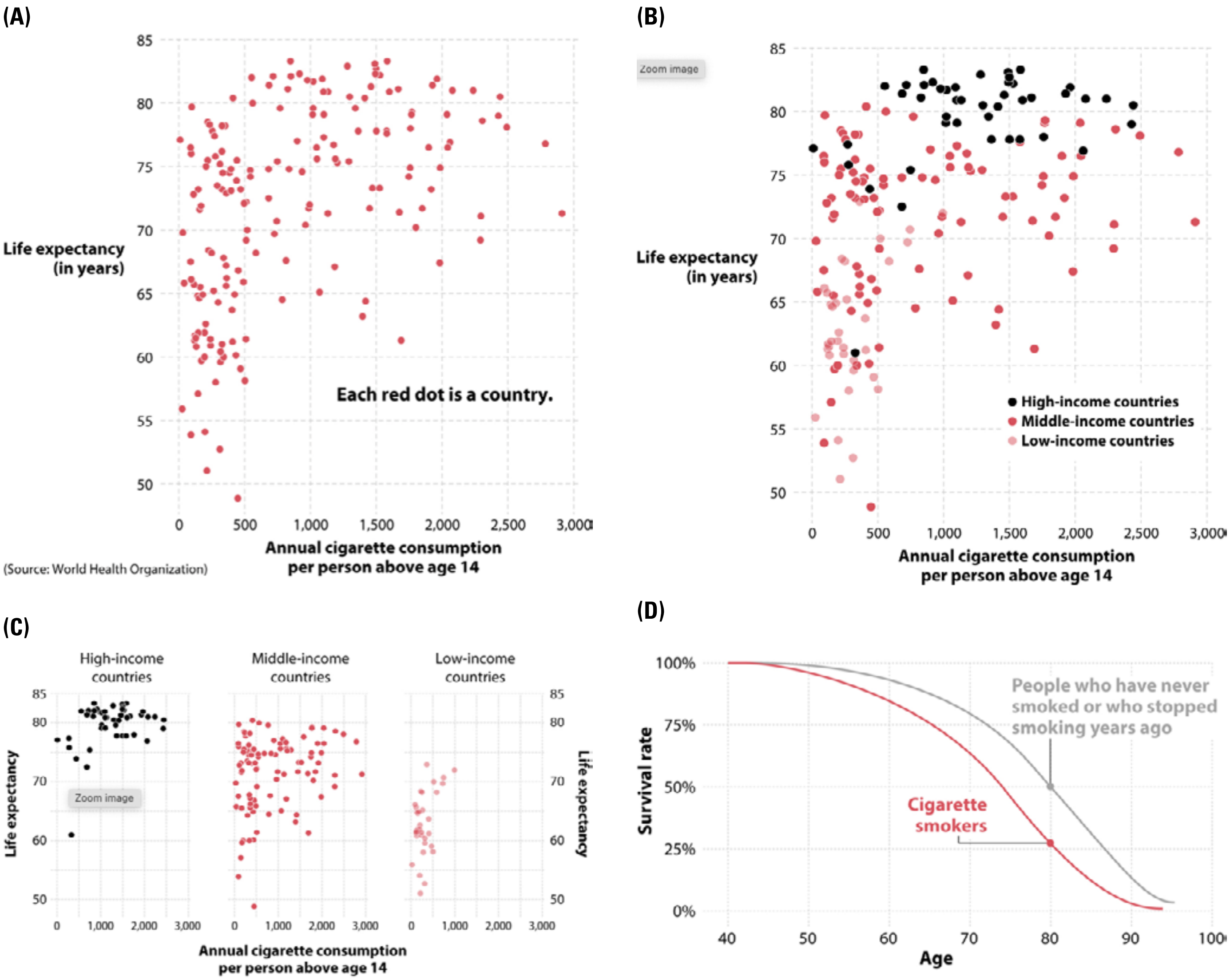

Figure 3. A Comparison of Life Expectancy and Annual Cigarette Consumption (Cairo, 2019)

can form and variables that can support accurate understanding. This investigation can materialize Wolfe's (2015) notion of "interpretive levels." With several variables, technical communicators need to contemplate on how data can be conveyed in multiple layers and facets (Stephens et al., 2015).

Another lesson to keep in mind is that data often must be put in perspective by considering adjusted value and base rate (Cairo, 2019; Harford, 2021), for instance, when data sources span vast distances of time and geography. Tufte's (1983) point that designers should consider numbers adjusted for inflation is an excellent metaphor.

Moreover, users are offered increasing autonomy to control and interact with visualizations (Richards, 2018). Technical communicators could use control to allow users to see multiple dimensions of the data; they should also beware that the control illusion can evoke false confidence in users.

Figure 3 demonstrates both the susceptibility of information visualization to cognitive biases and the power of information visualization to mitigate cognitive biases. The result is a kind of technical communication that is clear and eloquent.

Compatibility

The principle of Compatibility refers to the human tendency to recognize and accept information that is consistent with existing knowledge and beliefs (Korteling et al., 2018). To accomplish this, humans take the cues provided by the available information to retrieve those with compatible characteristics (Bar, 2007). The principle of compatibility manifests in the confirmation bias, the priming bias, the fluency bias, and the familiarity bias (Korteling et al., 2018).

Confirmation

The confirmation bias refers to the human tendency to accept information that confirms preexisting beliefs, attitudes, and opinions (Mohanani et al., 2018). It leads humans to question or disregard disconfirming evidence.

Priming

The priming bias refers to the human tendency to make judgments unconsciously under the influence of stimuli (Thaler & Sunstein, 2009). For instance, in one study, users were provided a set of related words. Later when they were asked to recall these words, they recalled words that were not provided (Chabris & Simons, 2010).

Fluency, Familiarity

The fluency bias refers to the human tendency to assign a higher value to information that can be processed easily (Effectiviology). The familiarity bias refers to the human tendency to regard familiar information as more convincing than unfamiliar information (Effectiviology).

When creating visualizations, technical communicators should ask what preexisting beliefs the user holds that can trigger cognitive biases. Confirmation bias is particularly relevant when many users are skeptical and apathetic to a topic, such as science and the environment (Richards, 2018). Figure 3A can reinforce the confirmation and availability biases held by those who believe that smoking cigarettes is beneficial to one's health. To uncover users' beliefs, technical communicators can investigate the characteristics of the target users and hold meaningful conversations with user representatives.

Another question to ask, with regard to the priming bias, is how visual elements affect the user's initial response and thus set the user in the wrong direction. The use of color, for instance, can prime users to form (mis)perceptions (Kostelnick et al., 2013) and can also interfere with the user's assessment of risks (Stephens et al., 2015). Figure 3A and 3B invite the user to see the data in two very different ways. With the color coding in Figure 3B, the user is primed to discern different categories of nations. Without it, the user sees an overall pattern that appears to run contrary to science.

Prospect

The principle of Prospect guides humans to determine a future act by assessing gains and losses. It manifests in loss aversion, status-quo bias, sunk cost fallacy, endowment effect, and framing bias.

Loss Aversion

Loss aversion refers to the human tendency to avoid losses in favor of gains of equal amounts (Kahneman, 2011). Losing $100 looms larger than gaining it. If what we have is perceived to be safer, we tend to resist change; if an alternative is perceived to be safer, we tend to embrace change (Thaler & Sunstein, 2009).

A Framework for Understanding Cognitive Biases

Status-Quo

The status-quo bias refers to the human tendency to prefer the current state over alternative states (Thaler & Sunstein, 2009). It means that what we have as default significantly influences what we do next.

Endowment Effect and Sunk Cost Fallacy

The endowment effect refers to the human tendency to value an object one owns more than one would when they don't own it (Kahneman et al., 1991). In other words, it takes more to give up an object than it does to acquire it (Kahneman et al., 1991). A related bias is *sunk cost fallacy*, which refers to the human tendency to stay on the path one has invested in (Thaler & Sunstein, 2009).

Framing

The framing bias refers to the human tendency to make judgments based on how the information is framed (Thaler & Sunstein, 2009). This phenomenon is usually known as the bottle-half-full versus the bottle-half-empty. Saying that one has a 10% chance of catching a virus might worry people more than saying that one has 90% chance of being safe.

One of the most frequently documented factors in information visualization is the time frame. The choice of time frame can greatly influence user perception of trends. Politically motivated visualizations often select a favorable time frame to present trends in economic performance and social progress (Cairo, 2019). For instance, they can bring the user to focus on a decline in numbers in a short time period and obscure an overall rise of numbers in a longer period (Cairo, 2019). Here, biases such as anchoring, priming, overconfidence, and loss aversion can lead the user to make unrealistic judgments. In visualizations, technical communicators should pay close attention to the time span and the overall fluctuation of data.

Data granularity also matters. In the 2016 U.S. presidential election, maps that showed votes by county could suggest overwhelming support for the Republican Party, whereas maps that showed citizen votes and population density could foster a more educated understanding (Cairo, 2019). To someone unfamiliar with U.S. elections, these visualizations can create dramatic misjudgments of prospects.

Relatedness

The principle of Relatedness refers to the human need to feel connected with and approved by others (Deci & Ryan, 1985). User behavior is increasingly influenced by the availability of social data that evokes relatedness. The principle of Relatedness manifests itself in the scarcity bias, the bandwagon effect, the social desirability bias, groupthink, and the fear of missing out bias.

Scarcity

The scarcity bias refers to the human tendency to consider items with limited availability more attractive (Thaler & Sunstein, 2009). Marketers often create a sense of scarcity by counting down the time left on a sale, reminding users a product is low in stock or showing real-time purchases by others.

Bandwagon Effect

The bandwagon effect refers to the human tendency to think and behave as they perceive others do (Mohanani et al., 2018). Humans perceive behaviors accepted by others to be appropriate.

Social Desirability and Groupthink

The social desirability bias refers to the human tendency to conduct oneself in a way that pleases others (Tyrkiel, 2020). Groupthink refers to the human tendency to conform to a group consensus (Swanson, 2013). Both biases can cloud our judgments and even censor our views.

Fear of Missing Out

The fear of missing out (FoMO) bias refers to the human tendency to feel anxiety that one is absent from others' experiences (Przybylski et al., 2013). Like the scarcity bias and loss aversion, FoMO plays into our fear that we are losing sight of and losing out on benefits and pleasure.

Relatedness permeates information visualization through the increasing use of social data. Technical communicators must carefully consider the ethical reasons for conveying social data. They should only use scarcity to provide meaningful information and not to purely encourage impulsive behaviors.

When conveying opinions and actions of other people, technical communicators should consider if the data is drawn from a selective sample, is based on self-reporting, and thus can perpetuate socioeconomic

disparities. Harford (2021) documents several ways public opinion visualizations can introduce a sampling bias; a survey can get a disproportionate number of wealthier respondents when the channel it uses perpetuates this pattern. Based on the troubling pattern, the bandwagon effect can further mislead (nudge) the user to adopt behaviors and predict the future, thus triggering prospect-related biases. Understanding relatedness can help technical communicators create work that fosters accurate observations and informed decisions of personal and public significance.

To put it all together, the principles of Retainment, Focus, Association, Compatibility, Prospect, and Relatedness (RFACPR) can be used to address technical communication problems that are caused by cognitive biases and can be alleviated by understanding cognitive biases.

CONCLUSION AND FUTURE RESEARCH

Many activities in technical communication, including information visualization, are not only prone to cognitive biases but can become an effective way to mitigate biases. The framework I introduced in this article, along with the sample questions, are intended to turn general principles into operable activities. It is my hope that this framework will provide a new lens and new ways to communicate empathetically.

This work presents ample opportunities for further research. First, future research can examine specific cognitive biases and their role in particular technical communication contexts. Second, research is needed to study different types of tasks and their susceptibility to cognitive biases. It will yield generalizable strategies to better these tasks and contribute to the field's body of knowledge. Third, research can devise design techniques that help (and nudge) individuals and organizations to use information more effectively.

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Increasing Inclusion in Technical Communication Academic Programs

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By Chris Dayley

ABSTRACT

Purpose: Technical communication (TC) academic programs are responsible for training future technical communication practitioners. Increasing diversity in the field starts with increasing diversity in academic programs and helping students from diverse backgrounds to graduate. Previous research has shown a lack of diversity in technical communication academic programs and a lack of inclusive practices in higher education in general. This study seeks to show how technical communication program administrators can increase support for students from underrepresented racial and ethnic backgrounds through better inclusion.

Method: I conducted qualitative interviews with undergraduate students, graduate students, and pre-tenured faculty members regarding their experiences in technical communication academic programs. Interviews were recorded, transcribed, and coded for emerging themes.

Results: Interview participants identified several areas where TC academic programs can increase inclusion, including focusing on inclusion rather than simply increasing diversity, problems with microaggressions, lack of representation, and the complications brought about by intersectionality.

Conclusion: TC academic programs, like higher education in general, are interested in increasing diversity. However, rather than focusing on simply increasing the number of students from diverse backgrounds, TC programs should focus on increasing program inclusiveness. This includes actively including diverse voices in program decision making and being willing to make changes based on the thoughts, ideas, and opinions of traditionally marginalized people. These recommendations can also be used by practitioners to begin increasing inclusion in the workplace.

Keywords: Diversity, Inclusion, Academic Programs

Practitioners Takeaway:

- Focusing on inclusion rather than just diversity is an important factor in the success of marginalized people in an organization.
- Actively including people from marginalized backgrounds in discussions and decision-making processes will aid in inclusion efforts.
- People from marginalized backgrounds should not be seen as a monolith. Each person has a unique background and should be treated as an individual.

Increasing Inclusion

This article extends the research reported in a previous article in which I discuss the ways in which technical communication (TC) program administrators can increase their inclusion efforts to recruit students from diverse racial and ethnic backgrounds by implementing practices suggested by students who identify as people of color (Dayley, 2022). This article shifts focus away from student recruitment and focuses on how TC program administrators can increase inclusion in their academic programs in order to better support current students.

Diversity and inclusion have become an important part of American work culture. Many companies and organizations that hire technical communicators have stated goals to increase diversity and inclusion and have implemented initiatives to meet those goals. However, in the United States, the field of technical communication remains mostly homogenous. A 2018 report in *Intercom* on the demographics and characteristics of technical communicators stated, "Diversity appears to be a challenge in technical communication. Eighty-one percent [of survey respondents] identified as White. Association with other groups ranges from 2 to 5 percent."

Along with many other characteristics of technical communicators, that same *Intercom* article also reported that 63% of technical communicators are currently holding or pursuing a bachelor's degree (Carliner & Chen, 2018). Since most technical communicators are college educated, if one goal is to increase diversity and inclusion in the field of technical communication (TC) as a whole, some attention needs to be paid to increasing diversity and inclusion in TC academic programs.

Issues of racial and ethnic diversity and inclusion in technical communication academic programs have gained recent attention from TC scholars (Dayley, 2020; Dayley & Walton, 2018; Jones, Savage, & Yu, 2014; Popham, 2016; Savage & Mattson, 2011; Savage & Matveeva, 2011). This focus reflects the increased interest in diversity and inclusion in higher education in general. In today's higher education culture, a diverse student body can be a form of prestige. The most racially and ethnically diverse campuses are ranked in U.S. News and World Report in the same way top academic programs are. However, traditionally white middle and upper-class social norms and values dominate the academy. Because of this, students of color at predominately white colleges and universities drop out at a much higher rate than their white counterparts (McClain & Perry, 2017).

Academic program administrators who are interested in the success of all students should think of diversity in their programs as more than a way to gain prestige or fulfill a mandate from upper-level administration. If students are not given the support to help them persist to graduation, then there is no point to bringing in diverse groups of students into an academic program. More than just increasing the number of diverse faces in a program, inclusion means intentionally seeking marginalized student perspectives and taking action to ensure those students have the best opportunity to be successful (Jones, Moore, & Walton, 2016, p. 214).

This article seeks to address the question, "how can we increase inclusion in TC academic programs for students of color?" To address this question, I interviewed current TC students, pre-tenure faculty members, and identified influencers about their perception of the inclusiveness of their TC academic programs. The article reports three major themes that emerged from these interviews. These themes include: the lack of a focus on inclusion in recruitment efforts, the presence of microaggressions, and the complications of intersectionality.

LITERATURE REVIEW

Today, American colleges and universities almost universally recognize the importance and value of racial and ethnic diversity. Colleges now invest large amounts of time and money to try and bring in more racially diverse classes (Pippert, Essenburg, & Matchett 2013). Along with higher education, technical communication academic programs have also seen a growing interest in increasing diversity. Diversity is a broad term that can refer to many demographic characteristics such as race, ethnicity, class, gender, sexual orientation, etc. For the purposes of this article, diversity refers specifically to racial and ethnic diversity.

Relatively recent scholarship has explored the issues surrounding racial and ethnic diversity in technical communication programs. This scholarship includes program administrators' perceptions of diversity in the field (Savage & Mattson, 2011), student perceptions of diversity in TC academic programs (Dayley, 2020), and recruitment efforts and stronger outreach to underrepresented populations (Dayley, 2022; Jones,

Savage, & Yu, 2014, Popham, 2016; Savage & Matveeva, 2011).

As Chong and Roundtree (2021) stated, “Our field has expressed a need for and interest in recruiting more diverse students as industries diversify, globalize, and tackle social justice policies and issues” (p. 1). However, for those interested in issues of diversity and social justice in TC programs, the goal should be not just to increase the number of people from different backgrounds but to foster more inclusiveness in the dialogue and ideas shared in TC programs (Jones, Moore, & Walton, 2016). Here, the term inclusion “refer[s] to efforts to forward a more expansive vision of TPC, one that intentionally seeks marginalized perspectives, privileges these perspectives, and promotes them through action” (Jones, Moore, & Walton, 2016, p. 214). In essence, just increasing the number of people from underrepresented backgrounds is not enough. Inclusion also encompasses support.

Although higher numbers of racial minorities are now entering college, fewer persist to graduation than their white counterparts (Casselman, 2014). This is largely due to the lack of inclusion efforts at colleges and universities (McClain & Perry, 2017). Technical communication academic programs also face issues of inclusion and may lack adequate support systems for students of color (Dayley, 2020).

Although references in the literature to inclusion in TC academic programs are sparse, inclusion is an important part of technical communication research—the professional practice of technical communication, at its core, is largely about inclusion. The humanistic nature of technical communication has been an important part of technical communication practice and research for many years (Miller, 1979). Technical communicators know that a focus on the user is imperative to successful technical communication (Acharya, 2017; Martin, Carrington, & Muncie, 2017). “In other words, people are at the center of TPC” (Walton, 2016, p. 407).

Much recent scholarship by technical communication scholars has focused on advocating for the inclusion of underrepresented voices (Edenfield, Colton, & Holmes, 2019; Jones, Moore, & Walton, 2016; Matheson & Petersen, 2020; Sánchez, 2018; Zdenek, 2020) as well as advocating for inclusive language and practices in our praxis (Agboka, 2021; Bivens, 2019; Garrison-Joyner & Caravella, 2020; Li, 2020; Saru & Wojahn, 2020; Walwema & Carmichael, 2020). Technical communicators, by virtue of their focus on “producing communication that is easy to use and appropriate for the needs of users” (Walton, 2016, p. 404), have the opportunity to use their skills and training as user advocates to focus on issues that impact the lives of oppressed peoples by working with the marginalized to create solutions based on listening to their needs and following their lead.

METHODS

This research project was a phenomenological study in which I used interviews to try to understand the lived experiences of people of color enrolled in technical and professional communication academic programs. The interviews were meant to produce data regarding participants’ experiences as technical communication students who identify as persons from traditionally underrepresented racial and ethnic backgrounds.

Recruitment

The study focused on persons of color living in the United States and participating in TC academic programs. Participants included five undergraduate students, six graduate students, and five pre-tenured faculty members. The initial student participants were identified from the participants in a survey I previously conducted (Dayley, 2020) who indicated they were a part of a racial or ethnic minority group. After completing the survey, participants were asked if they would be willing to participate in a follow-up interview. I identified each participant who indicated that they were willing to participate in an interview and also identified as a person of color. This resulted in a list of three undergraduate students, and four graduate students. Additional participants were identified through snowball sampling. Pre-tenured faculty member participants were identified through personal knowledge of TC faculty members as well as referrals from faculty member participants.

I contacted each student who identified as a person of color and indicated they would be willing to be interviewed. This resulted in three undergraduate and four graduate student participants. To increase the number of participants, additional students were identified through referral from student and faculty member participants. Faculty member participants were identified through personal knowledge of TC faculty

members of color and through referral from other faculty member participants.

As part of the study, participants were asked to name a person who was a major influencer in their decision to study technical communication or who was an important person in influencing her/him/them to persist in a TC academic program. Six participants identified an influencer and gave permission for that influencer to be contacted.

Participants

Interview participants were limited specifically to undergraduate, graduate, and pre-tenured faculty members who are majoring in or consider their primary research/teaching activities to be focused on technical communication. All of the participants attended or worked at public universities. Participants' gender identity and specific racial/ethnic backgrounds were self-identified. I interviewed five undergraduate students, six graduate students, and five pre-tenured faculty members. Because of space limitations, three undergraduate students, three graduate students, and three pre-tenured faculty members are quoted in the report of the data. The participants included 4 who are African American participants, 2 who are Hispanic, 2 who are Native American, and one who is Asian. The names of each participant have been changed to protect anonymity. Interview participants are identified by a pseudonymous first name or with the title "Dr." and a pseudonymous last name in the case of the pre-tenured faculty members. Influencers quoted in this study are also referred to as "Dr." with pseudonymous last names. Of the six influencers identified, three are quoted in this report.

Data Collection

Participants were asked a set of questions focusing on how they each selected a major in TC and what factors influenced them. A subset of their answers is presented in this article. Interviews were conducted over the phone, and the audio was recorded with permission. Interviews were semi-structured to allow more leeway when asking questions to interviewees. I created a list of 11 interview questions. Each participant was asked all 11 questions, but occasional follow-up questions were asked when clarification was needed. The interviews included questions regarding strategies participants use to persist in their degree programs, what challenges they have faced, and how their programs can become more inclusive. When conducting interviews, I tried to create a space where participants felt they could openly express their thoughts and experiences (Shenton, 2004). I recorded each interview and created a transcription from the recordings.

Data Analysis

After data collection, I used an in vivo coding method. This common qualitative coding method emphasizes the actual spoken words of participants. In vivo coding is used to "prioritize and honor the participant's voice" by using words and short phrases from the participants' own language in the data record as codes (Miles, Huberman, & Saldaña, 2020, p. 65). As part of my coding method, I used member checks. I emailed each participant their interview transcript and asked the participants to read over the transcript and let me know if any changes needed to be made. Any requested changes were made in the transcription document.

When quoting interview participants, I used exact quotations leaving in slang, alternative grammar usage, etc. If an interview participant used "filler words" excessively, such as "um," "like," or "you know," I removed those words. This was meant to allow the words of participants to be understood clearly (Lindolf & Taylor, 2011).

RESULTS

Location

Many of the faculty members I spoke to identified location as an important influence on the diversity of their institution. When asked if the location was a primary factor in the diversity of the students at her institution, Dr. Franklin, one of the influencers in the study, remarked, "I think it definitely helps because [the city where my institution is located] is more ethnically diverse than other parts of [the state]." Dr. Elion, another influencer interviewed, also believed the location was an important factor in predicting the amount of diversity in an institution's student body:

> When I was at [an urban university in the Midwest], I was there for three years, and that's an urban university and so there's just more of a mix of people in the city. In the program, we had African American students, and Latino students, and Asian students, and white students, and I

> mean it's just like a big old melting pot. It was nice, you know, and so I didn't really have to work at it that hard. And then at [a more rural midwestern university], I mean in the last couple of years we're just talking about it like all the time. I mean, I think we really in a state like [this midwestern state] is it's even worse. I mean it's just it's not very diverse around here so you know I think we're always thinking about ways that we can try to bring in different cultures and different ethnicities.

However, the diversity of an academic program does not always reflect the diversity of the surrounding community. Of two of her previous institutions, Dr. Lessing said:

> The idea of being in [a large midwestern city] at a school on the south side of [the city] and being one of the few black PhD students was mind-blowing to me. [The large southern institution where I previously worked] was also alarming to me only because I was in [a large southern city] in the heart of downtown... and quite often the only time I came across an African American student is because he was an athlete.

Dr. Lessing observed that even though the population surrounding the two institutions she mentioned was heavily populated by people of color, the universities she was a part of were not. For these institutions, in particular, the lack of diversity surrounding the area cannot be used as a reason for the lack of diversity in a program. Dr. Elion said of a previous institution where she worked:

> When I got to [a large southern university], you know it's in the South and the South has got some diversity, a lot actually, that wasn't really reflected in the program. So one way that we tried to kind of fix that was to just try to make our program more recognized and really make it like we tried to sell it as a boutique program. I don't mean sell it, I mean we just changed the way we thought of it, you know. The boutique program, it's a professional program for master's degree students. We would try to recruit people from all over the country rather than more locally like it has been. So that helped a bit like we were getting people from different states and then sometimes they would just add to the diversity of the student body in our program.

The preceding examples from faculty members regarding the way TC programs are trying to recruit students of color are admirable; however, their primary focus seems to be increasing the number of diverse students rather than creating an inclusive environment where students of color can find the support they need to be free from marginalization and persist to graduation. For some institutions, location will be a difficult factor to overcome if they are simply trying to get more diverse faces in their classrooms. For others, it's less about their location and more about institutional and cultural barriers. However, as discussed previously, the goal should not simply be diversity. The goal should be empowering students who are traditionally marginalized through inclusion.

Dr. Elion lamented about the fact that her institution is in an area where little diversity exists, so it is harder to find students of color. She did not mention any steps they were taking to help the few students of color at her current institution feel valued. Dr. Elion's example from her previous institution is especially telling in that, rather than utilizing local recruitment strategies to draw in students of color from the community, the institution instead would search nationally. This is a reflection of that institution's lack of commitment to inclusion in that they did not think to make the necessary changes to bring in and support students from the local area, but rather decided to look elsewhere for students who were likely better able to adapt to the institution's culture as they were actively seeking an education from a reputable school and were mobile. Instead of looking at how their program could seek to empower local students through seeking out their opinions, listening to their challenges, and making changes, Dr. Elion's institution is seeking an easier route that emphasizes diversity rather than inclusion.

It should be noted that the previously mentioned TC programs are likely not purposefully avoiding creating inclusive environments (Savage & Matveeva, 2011). Most program administrators likely have their programs' students' best interests at heart and are often given a goal of increasing certain metrics (like diversity) with little to no resources to do so, much less the resources it would require to create inclusive spaces for all students. The main problem lies in institutions' tendencies to look for easy metrics for gauging success. This focus on numbers rather than inclusiveness is part of the culture of higher education. The distinction

between seeking diversity for numbers sake instead of seeking to create an inclusive environment for students of color is likely invisible to most program administrators. They believe they are doing the right thing but are not aware of the problems they may be ignoring or causing.

Microaggressions

Interview participants were asked if they had faced any challenges or barriers while earning their degree that related to their racial/ethnic identity. Some reported specific experiences, but many initially reported no problems at all. Often participants who reported facing no difficulties related to their racial or ethnic background would then go on to talk about incidents or experiences that made their degree program more difficult that are linked directly to their race and/or ethnicity.

Two of the participants in the study identify as mixed race and reported that they present as white. One of these participants, Amber is a woman who identifies as Native American and white. She attends a midsize southern university. Amber identifies with her Native American heritage and is bothered when people speak disparagingly about Native people. However, she reported that she does not feel like she has faced direct hardships because she presents as white. According to Amber, she looks white so she doesn't generally face direct racism. When asked if she has faced challenges because of her racial identity, Amber said:

> I would say not really. I mean, I do hear people talk about, you know, American Indians and not really understanding that when they talk about American Indians this is like talking about any other nationality. You know, whatever you joke around about could be sort of offensive, and whenever people look at me they, you know, they just see just a regular looking person... I mean not regular looking, but I do look like I'm Caucasian, you know, but I haven't really seen any real hardship. The only time I've ever heard anyone say anything that was even close to offensive was at the University. I was the only person left in the computer room late at night working away on some project and the people who worked in the lab, the students who worked there, were saying some different things about American Indians and, you know, it was just they didn't know I was there. I was a little [offended] but they were very young and so you know I just chalked it up to them being ignorant.

Although Amber initially reported not facing any hardships, her comments about people making racist jokes around her point out a hardship that is compounded by her multiracial background. The racist jokes Amber heard are microaggressions she has learned to dismiss or ignore over time. People may feel free to tell jokes like this around Amber because they assume she is white. This means that Amber is subjected to offensive jokes that might not have otherwise been told around her. She then must choose whether to speak up and possibly have to endure a more difficult situation, or to ignore the offense. Although Amber has had to endure offensive jokes during her time in her degree program, she still said she has not "seen any real hardship." This may be a clue to why students sometimes report that they don't see any problems with diversity in their academic programs. Perhaps they simply brush off any offense they experience the same way Amber did. Joan, a woman who identifies as African American, Native American, and white and attends a mid-size midwestern university, also found that the fact that people only see her as Caucasian was a challenge:

> Like when people look at me, they just see a Caucasian. They don't know I'm mixed with anything else so in a way that is its own barrier because I love all the races I'm mixed with, you know? I claim them all equally so in a way that was kind of a barrier because when people assume that you're something just because of how you look, whether it's getting extra privilege or less privilege, it's still a barrier.

Lois, a woman who identified as a South Asian person from Palestine and attends a mid-size southern university, also said that she never really felt out of place but did want someone she could connect with in her program:

> Most of the time, no, I didn't really feel like there were students I could really connect with. I did kind of feel distant. I'm not saying like "oh I'm out of place I don't belong here"—not like that, but yeah, I did feel that there weren't really students I could connect with.

Although Lois reported that she never felt out of place, she said she did not feel like she could relate to the students in her program. This contributed to a feeling of being "distant." Like Amber, Lois dismissed the difficulties she faced in her program. A similar example comes from Dr. Yates, an African American woman working at a large southern university.

Dr. Yates reported that she did not face barriers because of her race, but like Lois, also felt like she did not have someone to relate to in her program. Because of this, she actively sought out a mentor outside of her institution who she could relate to:

> I don't know if there were like blatant barriers, but I definitely noticed that I was not learning from people that look like me, you know? So when in 2010 [a notable African American female TC scholar] published [a book], I don't know what I was doing at the time. It was during the summer and I think I was supposed to be writing my dissertation proposal or something like that. I came across her book and I googled her name and her face came up and I was like "Oh my gosh, a black woman!" you know? Oh my gosh, I was freaking out and so I reached out to… the editor of [a] journal in our field, and I said I will write a review for this book. I read the book, wrote a review, and after that reached out and was like "Hey, I just reviewed your book…" She was the first black woman in our field that I was able to see myself in because there was no one else. Just to see that she was a full professor, she was well respected, she has a book out--that meant a lot, it really meant a lot. Basically, I was like "Okay, you're going to mentor me like you just are." She's so kind and that year at [a conference] I made it a point to introduce myself to her, but even like going to... conferences it was very clear that black women were not represented in the field and I don't mean like oh there's only like a handful of us I mean there was so few of us at that time... I want people to be able to see themselves represented in the field, and when I say represented, I mean visibility matters, you know?

Not having a mentor to relate to can make the college experience more difficult for students. Dr. Yates's proactive approach in seeking out a mentor was likely aided by the fact that she was a PhD student and felt free to reach out to a fellow scholar. This would be more difficult as a younger undergraduate student.

Brooke, an African American woman and PhD student who attends a large southern university, reported that she did have supportive faculty. Like Dr. Yates, Brooke needed someone who she could really relate to. She had her cohort, which included a few African American students who supported each other, but she wanted a mentor to truly be able to guide her:

> As sad as it is, I have faculty support, but I wouldn't necessarily say that I have like a mentor that has shaped me if that makes sense. I think my cohort has probably shaped me more than any faculty member could have possibly shaped me. If anything, they've probably helped me find the tools to navigate through tech com and the academy, but the things that have made me me, that I follow, have mostly come from my cohort more than it has from faculty. Because I feel like with faculty, they care in so many ways, and I love that they're willing to hear us, but I feel like sometimes they become more of the student when I need them to be my teacher. [My faculty mentors are] great. They're fabulous people. I mean, I work with great people, but there's just sometimes where I'm just like I need someone to really get what I'm saying.

Brooke did receive support from faculty members but felt that her most important relationships came from her fellow students. Not only did Brooke lack a mentor she could relate to, but she also was tasked with additional labor having to teach faculty members how to be more inclusive. Though the type of challenges and microaggressions described above are sometimes less obvious, others are more overt. When Brooke was asked if she ever felt out of place in her program, she said:

> I don't know if out of place would be the best term to describe that, but it's more so we always say like "Y'all hear me, but do you really hear me?" The example is microaggressions right? We can talk about those things in theory but what I notice is a lot of times the people I'm working with don't get them in practice. So a presentation I've given before is on privileged socialization practices. So an example of that would be at one point [my program] would have like little gatherings and would have alcohol be served. It was just a very informal type set up and I had to bring to their

> attention that as a black female, I've been taught to not do any of this. So it's more stepping into those socialization practices that are very different culturally and trying to make sure everyone understands it. Like, this is what you're doing and this is the problem. And even making sure that I take the stand in saying you're not going to use my labor. Like y'all going to do the work, too. You're making me mad, here's why, now you need to go research why this makes black people mad. So that's that finicky line where I'm trying to make sure they're made aware of where they messed up, but I'm not teaching the whole lesson either. Like there has to be some accountability on their end, too.

In the preceding quote, Brooke voiced her concern that the faculty and administration at her university aren't trying to create an inclusive environment for the students of color who are there. Brooke's statement reflects her frustration with constantly explaining her culture in the context of the dominant culture. People who do not understand Brooke's cultural influences expect Brooke to explain why a certain behavior or practice is not okay when they believe it is perfectly fine. Brooke either must go along with the dominant culture or try and justify why she is not. This reflects the cultural commodity that is whiteness. As a part of the dominant culture, a white person is not asked to justify a cultural practice against the practices of another culture. A white person is not asked to explain or educate others about their social norms. In her quote, Brooke brought up a good point. Part of the work should be done by the people in power to understand where she, and other students of color, are coming from. Program administrators can take initiative and show students of color that their cultural ideas are important and valued by listening, researching, and validating.

Dr. Munro, a Hispanic woman working at a large western university, faced challenges while navigating her degree program and throughout her academic career when people made assumptions about her because of her racial identity. Dr. Munro said of the challenges she faced:

> I think there's challenges daily that we've kind of just become accustomed to. I think when I first learned to speak English, for example, there was a lot of stigma about what classes I could, you know, partake in. Even from early on in elementary school, my teachers were like "No, you cannot be in advanced English classes or language arts classes because English is not your first language." They would say that to me and so of course, me being the stubborn person I am, I would try to counter that by saying "I'm gonna study English and make it my major." I think, in a way, those kinds of microaggressions and that kind of prejudice has led me to where I am because now I can kind of counter those perspectives in teaching my own students. I do think that there are struggles that we face in the field on many different degrees. So in some ways people want to keep us out of specific conversations in projects but in other ways people want to bring us in to specific conversations and projects just because they want to check off that box that says do you have diversity here, you know? So I think I faced a lot of that too where people are just looking for some more diversity. It doesn't matter who it is, and they will reach out to me because they know that I fit that category. So there's been a lot of that lately. There's also been some of like attributing my success, not that I have a lot of success, but any success that I have to "Well you know you fit the diversity category so that's why you got published," or "That's why you got a job," or "That's why" whatever. I think those are things that we face consistently which is why we need those support networks.

Like Brooke, Dr. Munro was also forced to justify herself within the context of the dominant culture. When she is accused of having advantages because of her race, she is being told that she could not possibly be successful on her own merits. The implication of statements like "Well, you know you fit the diversity category, so that's why you got published" is that only white people can legitimately publish, and she needs help because she is Hispanic. This is a symptom of the embedded racism in our society. If a white person receives help because they know someone or because they have a connection, then they are just "well connected," but if a person of color receives help from an affirmative action program, then that is unfair. Seeing ingrained hypocrisy like this will be a difficult challenge for administrators who want to create more inclusive academic programs; however, the success of

students of color in TC academic programs depends on efforts like this.

Although many of the interview participants did not initially name specific challenges they faced because of their racial or ethnic identity, each described an experience in which they faced some obstacle because of their racial identity. These unnoticed microaggressions may be a result of students simply doing what they need to do to survive and graduate. This may be a contributing factor to why fewer students of color persist to graduation (Casselman, 2014; McClain & Perry, 2017).

Whether the microaggressions found in TC academic programs go unnoticed, as in the first four examples in this section, or are blatant, like the last two examples, working to remove these obstacles is an important part of creating an inclusive program where students can talk about the challenges they face in an environment where people will listen, believe, and act. This is a cultural change that will take more than a few strategies to implement. As program administrators begin to make the smaller changes necessary to create an inclusive environment, this type of cultural change can be made over time by emphasizing the importance of listening to the students in their programs, believing them, and taking action.

Intersectionality

Critical race theorists recognize that oppression experienced by racism is compounded when combined with other identity markers such as gender, sexual orientation, and ability (Crenshaw, 1991; McCoy & Rodricks, 2015). Intersectionality, a term coined by legal scholar Kimberlé Crenshaw in 1989, describes how the different identities of multiple marginalized individuals intersect to create unique burdens for those who are subject to more than one type of discrimination.

Maggie is a Hispanic woman at a mid-sized western university. In addition to being a student, she also works professionally as a technical communicator. She provided a reminder that although race and ethnicity are the central theme of this study, intersectionality is at play in the lives of every interview participant:

> Honestly, [Author's Name], I see it more being female, not being Hispanic. I look Hispanic, and from time-to-time people will approach me and because I look Hispanic and will immediately begin speaking Spanish. Then I correct them and say "No, no--I don't fluently speak Spanish. I understand it. My family speaks Spanish. I do not." But I think in [TC], it's more biased to females. I have found that just in in my workplace (I've been with the IRS for almost 15 years) and in our workplace the majority of those positions are held by men and it's very rare that women are in those positions ... Our technical manuals are filled with $10 words that are absolutely unnecessary, and there's a lot of direction that is absolutely unnecessary. It's as if they're just repeating the same thing 16 times to get the result that a sentence would have taken care of and it would have been more concise and clear. A lot of those things just aren't clear. When we, as the clerks that have to use these manuals to do our jobs, when we approach it and we suggest changes, I mean it's immediately shot down. I've sat in roundtables where there have been maybe two women to 14 men and we're kind of immediately shoved aside like our opinions aren't as maybe intelligent as some of the others. It's not a fun position to be in so I find it more on the female side. I don't know that I would say race or ethnicity has ever had much to do with it on my end.

Maggie must face challenges related to both racism and sexism. Not only does she have to consistently explain to people that being Hispanic does not mean that she speaks Spanish, but she has to deal with the problems that come from working in a male-dominated workplace. In her interview, she said that her motivation to complete a degree partly came from her desire to be respected in a workplace that does not respect women. Although she faces challenges as a person of color in her degree program, those challenges are compounded by the sex discrimination she faces at work.

Milton, an African American man who attends a mid-size eastern university, was often singled out as the "liberal voice" in his program. When asked if he ever felt out of place, he said:

> Not really. Out of place might not be the word that I'd use. I certainly felt outnumbered in some of our discussions. I'm a fairly confident student and so "out of place" I'm not sure if that's what I would say, but some of our classes, you know when you're talking about teaching college composition,

> especially as who's going to college changes and the theory kind of surrounding that, and equal access to education, of course it's very difficult for those conversations to not slip into the overtly political realm. So often, whether or not other students agreed with me or not, I was often required to speak as the only voice of like, ya know, liberal opinions whether or not I was actually... the only one that has liberal opinions in class.

As Milton stated, he was likely not the only one with a liberal mindset in his class, but he was likely the only African American in his class. When an issue like equal access to higher education came up, he was immediately singled out. Although being liberal is not necessarily a marginalized identity, because Milton is black *and* holds politically liberal views, he was singled out to represent left-leaning opinions because of his race. This type of singling out put an undue burden on Milton, one that his other classmates did not have to bear.

The participants in this study face an intersection of challenges based on many personal characteristics. This makes implementing inclusion strategies difficult. What might be inclusive to one student might not mean anything to another, and efforts to include some students may exclude others. Program administrators cannot simply apply broad changes once and be done. They need to build flexibility into their programs and be willing to adapt to each student.

Recommendations

As you can see from the examples shared in this article, increasing inclusion requires an intentional focus on the needs of individual students. Although this article is limited in scope, participants' responses offer several insights into how TC academic programs, or organizations that employ technical communicators, can be more inclusive.

Don't focus only on numbers

When considering increasing diversity, the focus should not simply be on the number of people from diverse backgrounds. As pointed out by Dr. Elion, one of the influencers in the study, the number of people from diverse backgrounds at an organization can be influenced by many factors, such as that organization's location. It may be that an organization in a certain location is always going to struggle with diversity. However, that organization can take steps to be more inclusive so that they can support the people they currently have from marginalized backgrounds and create an enticing environment for future students and/or employees.

The easy way is not always the best way

Another example also comes from Dr. Elion's second institution. Her current institution is located in a diverse area. The program was having trouble recruiting students from diverse backgrounds. Rather than figure out why this was, the program began looking to recruit nationally. Likely it's easier to bring in students who are actively looking to relocate than it is to bring in students from the local area who are not currently looking at the institution as a possibility. Recruiting nationally brings in students who are already used to higher education's social and cultural norms. The program does not need to change much to recruit and support these students. However, this is not inclusion. Program administrators who are committed to inclusion should look at why local students are not enrolling and the changes that can be made to attract these students and support them to graduation. Likewise, other organizations outside of higher education may be tempted to hire only people who best fit their company "culture" rather than looking for ways to bring in people with new ideas and perspectives.

Provide clear resources for people who may experience problems

Several students reported not facing any issues or barriers in their programs just before mentioning a microaggression or difficulty they faced. Many people have been trained throughout their lives to ignore difficulties related to their racial and/or ethnic background in order to survive in school or the workplace. Although employers and program administrators likely can't eliminate every microaggression a person may face, they can create an environment where students and employees understand that they do not have to ignore or accept those microaggressions. Deliberate efforts to incorporate inclusion in orientation, onboarding, messages, meetings, curriculum, etc., will help students and employees know where they can go if they are experiencing problems. Taking action based on student/employee feedback will help people of color know that their voice matters.

Provide opportunities for strong mentoring

Some students spoke about the need to go outside their program to find a mentor to whom they could relate to. Ideally, a student or employee should not need to go outside of the program or organization to find a mentor to whom they can relate. However, if this is not possible, then program faculty and administrators or organizational leadership should proactively work with students and/or employees to find mentors and resources.

Be flexible when making changes

Every student in every program is different and faces different challenges based on multiple factors influencing their lives. The same goes for the employees in every company or organization. Employers and program administrators may look to form committees to discuss ideas and make permanent changes to increase inclusion. Though permanent changes are necessary, no solution is going to work for everyone. Programs and organizations need to build flexibility to address the unique needs of each student/employee with the goal of supporting everyone.

LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

Limitations

There were several limitations to the present study that may have affected the results. The first is that the number of participants in the study was limited. As with most qualitative research, the number of participants was not enough to yield generalizable results. Also, because of the amount of data collected in this study and the limited space of a journal article, I was only able to share a portion of my findings. As more studies like this one emerge, we will get a clearer picture of the challenges people of color face when enrolling in TC academic programs.

Another limitation of this study was that all participants were either current TC students or graduates of a TC program. These students are successful in persisting in their programs which means they have likely had a good experience and would have fewer criticisms related to exclusionary practices.

Each of the participants in this study knew beforehand that the study was about diversity and inclusion. They likely deduced that the study would focus on the benefits of diverse and inclusive environments, and may have altered their answers because of this knowledge.

Recommendations for Future Research

To address one of the major limitations of this study, students who have dropped out of TC programs should be contacted to learn about their experiences in the program and why they left. This information may be difficult to get and would require cooperation from university registrar's offices and carefully thought-out questions to avoid possible trauma. This kind of research project could yield very interesting results regarding why students leave TC programs and offer recommendations for changes that make programs more inclusive.

A more targeted study focusing specifically on the undergraduate experience or specifically on the graduate experience may help yield more generalizable results. In a study with a broad scope focusing on undergraduate, graduate, and postgraduate populations, it may be difficult to ascertain what factors affected the population most. A more focused study could help identify specific issues in a more specific population.

In the future, researchers should begin narrowing in on the experiences of people of color at different kinds of institutions, such as community colleges and people working in industry at various companies and organizations. It may also be beneficial to conduct a longitudinal study following a group of students as they progress through college and into a professional career.

CONCLUSION

Although a diverse community would be advantageous to TC programs (Gurin et al., 2002; Terenzini et al., 2001), administrators need to keep in mind their motivation for creating a diverse environment. In pointing out the lack of diversity in technical communication programs and devising strategies to increase diversity, administrators often fail to mention why they want a more diverse group of technical communicators in the first place. Are TC faculty and administrators interested in including diverse viewpoints in program dialogue? Are they concerned with creating a more well-rounded experience for students? Do faculty and program administrators want to create opportunities for underprivileged individuals? Do program administrators and TC faculty want to

redress the inequality present in TC academic programs? Do faculty and administrators want to bring the voices, contributions, and experiences of the marginalized to the forefront? Or do they simply want the prestige that comes with creating a diverse population?

Faculty and academic departments play a large role in student success. Involvement by faculty members can make the difference between a student dropping out or persisting to graduation. Creating an environment where students feel comfortable and supported by faculty and other students can help students thrive. If TC program administrators recognize embedded practices that marginalize students, such as negligent recruitment practices, the microaggressions students of color face, and the intersectional nature of personal identities, TC programs may begin to address these weaknesses and start creating inclusive departments that not only attract students of color but also support their success.

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Elements of an Emergent Style Guide for Kickstarter

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By Stephen Carradini and Eric Nystrom

ABSTRACT

Purpose: Crowdfunding campaigns are a way to secure capital for organizations, entrepreneurs, artists, and more. Little research has focused on stylistic aspects of text associated with successful campaigns.

Method: We used corpus analysis to analyze the text of 312,529 Kickstarter campaigns. We used a novel scoring method to compute how often verbs and words surrounding verbs were associated with success or failure. We then identified prominent stylistic aspects of text that were often included in successful and unsuccessful campaigns.

Results: Stylistic elements strongly associated with success included using *we* instead of *I*, using contractions instead of full forms of verbs, inviting the reader to join the project and receive rewards, and projecting confidence via *will* instead of the more uncertain *would*.

Conclusion: Stylistic findings interact. Specifically, using *we* and contractions together indicates outcomes strongly associated with success. Broadly, each of the findings point toward creators of campaigns attempting to build trust in the readers. The elements of this emergent style work together toward a goal of producing campaign text that describes a campaign readers accept and trust as likely to succeed.

Keywords: Style, Style guide, Kickstarter, Crowdfunding, Verbs

Practitioner's Takeaways

- Using *we* as the subject of a sentence was often more strongly associated with successful campaigns than using *I*.
- Using a contraction was often more strongly associated with successful campaigns than the full forms of the same words.
- Pairing *we* with a contraction (e.g., *we're*) was often strongly associated with successful campaigns.
- Telling readers what to expect when the campaign succeeds was often associated with success for writers using *we* and writers using *I* as the subject of sentences.
- Inviting readers to join the campaign was a strong tactic.

INTRODUCTION

Technical communicators often work closely with style guides because the style guide is the "rule-driven document that sets the parameters for consistency and *acceptability* of all written materials produced by an individual or group" (Adhya, 2015, p. 184, emphasis ours). Organizational style guides ensure that employees' written materials are deemed acceptable by the organization before publication. Yet social media platforms, one outlet of publication for technical communicators' work, offer limited guidance regarding what they deem acceptable word choice, grammar, and punctuation on their platforms. Furthermore, users may have expectations of what acceptable text should look like from an organization on social media. Given this context of ambiguity in which social media content is published, understanding what acceptable text looks like for organizations in specific social media platforms would give the technical communicator much more guidance than is currently offered for many platforms.

Kickstarter is a social media platform that supports crowdfunding, an activity that allows creators of new products, services, or creative activities to seek venture funding from the public via online donations (Belleflamme, Lambert, & Schwienbacher, 2014; Kickstarter, PBC, 2021). Like most social media platforms, Kickstarter offers limited stylistic advice to those who would crowdfund an idea. Furthermore, the success of a Kickstarter campaign depends on the creator's ability to convince the audience to give money to the campaign through the platform. Understanding what types of stylistic markers are accepted by users in campaigns would allow technical communicators to employ text accepted by readers and increase their chances of successful campaigns.

Thus, this study uses computer-aided corpus analysis to identify users' expectations for Kickstarter campaign text. We identify stylistic elements frequently featured in campaigns that users accepted (successful campaigns) and rejected (unsuccessful campaigns). The binary nature of Kickstarter makes this method possible—with few exceptions, a campaign either succeeds or fails to reach its financial goals. As a result, a corpus analysis can identify elements of style included in successful or unsuccessful campaigns. Given the context of campaign creators trying to convince readers to fund a speculative venture, we found that readers accept certain stylistic conventions that function as indicators of trustworthiness. Creators build trust in campaign readers by:

- using *we* instead of *I*,
- speaking at a level of formality acceptable to Kickstarter readers' expectations,
- inviting readers to join the campaign, and
- projecting confidence.

These stylistic elements work together to further the goal of building trust in the reader and encouraging the reader to accept the creator as competent to complete the campaign (via delivering the project and fulfilling promised rewards). We close by collecting conventions into an emergent style guide for the Kickstarter platform.

Entrepreneurship

Crowdfunding is prominently (but not exclusively) associated with entrepreneurship, a topic of interest in the last decade of technical communication research (Spinuzzi 2016; 2017). From a practitioner standpoint, entrepreneurship—in the form of independent work/contracting, small business owning, and other types of labor arrangements—has been a viable, at times desirable, and sometimes necessary option for technical communicators since at least the early 2000s. Lauren and Pigg (2016) argued that "despite growing labor statistics and narratives that describe practices that enable independent work, TC still needs to systematically investigate the phenomenon to better understand it" (p. 343). From a research standpoint, Spartz and Weber (2014) note that technical communicators and entrepreneurs conduct similar rhetorical work. For example, entrepreneurs create and revise genres such as the oral pitch and the pitch deck in response to the rhetorical situation and audience input (Spinuzzi et al., 2015), just as with technical documents and presentations. Furthermore, entrepreneurship and technical communication can converge in a single company, such as in the technical marketing communication of the aviation startup studied by Mara (2008). Beyond an interest in the genres of entrepreneurial activity, technical communication scholars have investigated the experiences of Black entrepreneurs (Jones, 2017) and entrepreneurs beyond North American borders (Fraiberg, 2021). Yet new technologies are changing the work and experiences of entrepreneurship:

Elements of an Emergent Style Guide for Kickstarter

> The context of 21st-century entrepreneurship is rapidly changing due to the increasing popularity of new methods such as crowdfunding. Traditional genres, like the elevator pitch or business plan, … have increasingly become subsumed into emergent methods. Elevator pitches, for instance, have been replaced by viral videos; while the basic structure might be familiar, the kinds of writing necessary to invent and circulate such videos are drastically different (Vealey & Gerding, 2016, p. 414).

Online genres and technologies, as demonstrated generally in social media and specifically in crowdfunding, require entrepreneurs to enact new types of writing to be successful. Writing, whether in new forms or old, requires content and style. In this article, we focus on style, so we now turn our attention toward what is known about style in social media.

Social Media Style

Social media platforms have become valuable resources for organizations to communicate to their constituencies and for people to communicate back to the organization (Fan & Gordon, 2014). Yet in-house organizational style guides offer much more detail to employees of organizations than social media platforms do.

Social media platforms govern acceptable content[1] more often than acceptable style. The most prominent way platforms enforce acceptable content is daily content moderation, where moderators take action against content that violates the platform's content guidelines (Gallagher et al., 2020). More subtle forms of governance exist. Wang and Gu (2016) demonstrated how platforms signal acceptable types of content through design decisions, explaining that WeChat's communicative features shape and protect the possible content of users in ways that reinforce the designers' goals of "free dissemination of information and public involvement" (p. 23). Design can also shape content in negative ways: elements of Facebook's design encourage content that reflects "sensationalism, controversy, drama, intrigue, as well as feelings of amusement, anxiety, fear, and suspicion over curiosity, empathy, understanding, or kindness" with the overarching goal of monetizing the platform (Sano-Franchini, 2018, p. 401). Platforms can also suggest acceptable content as examples: the DIY repair wiki iFixIt "clearly lays out the content models for a variety of content types" when users begin to create content for the wiki (Getto & Labriola, 2019, p. 392).

Compared to published content guidelines, social media platforms offer limited governance of platform-appropriate word usage, punctuation use, grammar, and text formatting. Twitter famously began by only allowing posts of 140 characters due to technical concerns (King, 2009), but later raised the cap to 280 characters in a stylistic choice made to help people avoid "cramming" text into the small character count (Rosen, 2017). Further examples of style imposed via interface include Instagram's character limits on user bios (Meta, 2022) and caption requirements for certain types of YouTube videos (Google, 2022). These guidelines apply across the whole platform for professional and personal users.

Professional users of social media must contend with user expectations as well as platform expectations because social media "texts are partially constrained by the platform guidelines as well as community expectations" (Pope, 2018, p. 494). Users of social media platforms have expectations for what acceptable content by professional organizations looks like on social media (Martin, Greiling, & Wetzelhütter, 2018). For example, West found that students have "their own personal ideas about how social media could and should be used, and they often attempted to map those uses onto businesses and organizations" (2017, pp. 413–414).

Understanding these often-unwritten social expectations of a platform can be a challenge for professionals and organizations. Much ineffective social media use and many social media crises come from organizations producing text and content that users find unacceptable, such as when users rebuffed Qantas Airlines' seemingly innocuous tweet about a giveaway contest as insensitive toward an ongoing, unrelated corporate crisis (Bowdon, 2014). Furthermore, users may feel that acceptable language may differ for professional content and personal content (Liederman & Perloff, 2022). Consider Figure 1, which displays a prominent case: Twitter users perceived Chase Bank's professional use of a sarcastic joke format popular on

1 Here and throughout the paper, we define "content" as all of the multimodal aspects that go into social media posts: text, emojis, images, audio, video, et al. We refer to alphanumeric text as "text." We call the process of developing all aspects of a Kickstarter campaign "creating" a campaign. Producing the text of the campaign is called "writing" throughout.

social media as poor-shaming, with users as prominent as United States Senator Elizabeth Warren tweeting back disapproval (Molina, 2019). While expectations for the differences between professional and personal content could be discussed in organizational style guides, technical communicators working without a social media section in an organizational style guide must investigate and understand users' social expectations for professional content in individual platforms.

Crowdfunding

Kickstarter is one of the most prominent examples of a crowdfunding platform. While models of funding vary among platforms, Kickstarter follows the All-or-Nothing model (Cumming, Leboeuf, & Schwienbacher, 2015). Kickstarter campaigns have a financial goal that the campaign creator designates in advance (Mollick, 2014, p. 5). If funding comes in from "'family,' 'friends,' 'professional acquaintances,' 'previously known fans,' and 'previously unknown backers'" to reach or exceed the goal, the Kickstarter campaign is successful, and the creator gets the money to make the project (Davidson & Poor, 2015, p. 296). If the funding does not come in to reach the goal, the campaign fails, and the creator does not get any of the pledged money. This binary result makes Kickstarter campaigns high-stakes efforts; failed campaigns can result in wasted time and effort.

Figure 1

Yet the stakes are not just high for the creator. The people who fund campaigns (which Kickstarter calls *backers*) contribute money based on their interest in the project and estimation of its success. If a campaign meets its funding goal but the creator fails to complete the project, the backers will not get the promised outcome of the project, may not get the rewards offered, and likely will not get their money back. Kickstarter frames this relationship between creators and backers on their *Trust and Accountability* page:

- "It's the creator's responsibility to bring a project to life and deliver the rewards they've promised to backers.
- It's the backer's responsibility to determine whether to support a project. When they do, it's their responsibility to deliver that support, regardless of the project's outcome.
- Rewards aren't guaranteed by Kickstarter or the creator" (Kickstarter, PBC, 2022a).

The role of backers in Kickstarter campaigns—according to Kickstarter—is to determine whether to support a project in a speculative context where a poor decision based on misplaced trust may mean lost money, no project outcomes, and no rewards. In this context, creators must effectively convince the reader to trust that the creator can "bring a project to life" (Kickstarter, PBC, 2022a). The stakes are high for the creators and the backers.

As a result of these stakes, understanding the characteristics of successful campaigns has become a critical concern for researchers (Hu & Yang, 2020). This type of analysis reached a high point in Ryoba et al. (2021), who suggested that a collection of only nine elements can be used to predict the success or failure of a (completed) Kickstarter campaign: country, number of images, number of videos, number of words in a project, number of updates to the project, number of comments on a project, presence of FAQs in a project, cost level of rewards for users (also known as *pledge levels*), and number of people backing the project. The campaign creator cannot control some of these

backward-looking indicators of success, such as the number of people backing the project and the number of comments on a project. Creators can control some indicators, such as the number of videos (Cudmore & Slattery, 2019), the number of images (Carradini & Fleischmann, 2022), and the number of words in a project (Thapa, 2020). For technical communicators, these findings form technical guidance regarding multimedia inclusion but do not give much guidance on the writing style.

Even though the quantity of multimedia elements in a campaign can help predict success, Mitra and Gilbert (2014) found elements of text to be an even stronger predictor of success. The authors analyzed 59 control variables and 20,391 phrases to find that "the top 100 predictors of *funded* and *not funded* are solely comprised of phrases" such as "*mention your,*" "*pledgers will*," and "*we can afford"* instead of variables such as the presence of a video in the campaign, the number of updates provided to backers, whether the project was connected to a Facebook account, and how long the campaign ran (pp. 54, 57, italics original throughout). Thus, creators should be interested in what textual elements associate with success in Kickstarter campaigns.

Textual Analysis of Kickstarter Campaigns

Researchers have identified various textual elements associated with successful and unsuccessful campaigns (Sandouka, 2019). Tirdatov (2014) analyzed appeals in the 13 most-funded Kickstarter campaigns at that time, revealing 12 appeal subtypes divided among ethos, logos, and pathos appeals. The author found that "all of the thirteen most-funded projects contained all three types of Aristotle's rhetorical appeals (with varying combinations of appeal subtypes), a situation not necessarily common to all kinds of rhetorical discourse" (p. 21). Ishizaki (2016) used computer-aided rhetorical analysis to identify rhetorical strategies of successful and unsuccessful campaigns from 901 campaigns in the technology category: "The rhetorical strategy that emerges… is to use a confident voice and provide significant expert details with clear explanations of what the product enables. On the other hand, failed pitches seem to address more general non-expert audience with less specialized details" (p. 3; cf. Koch & Siering [2015] for a concurring assessment on a detailed proposal).

Other advice to writers drawn from research includes:

- Convey reciprocity, scarcity, social proof, social identity, likeability, and authority (Mitra & Gilbert, 2014);
- Highlight that the product is novel or useful, but not both useful and novel (Mukherjee et al., 2017);
- Avoid self-disclosure, raising questions, and apologizing (Grebelsky-Lichtman & Avnimelech, 2018); and
- Employ language in the text reflective of hope, optimism, resilience, and confidence (Anglin et al., 2018; cf. Ishizaki [2016] regarding confidence).

These texts point to argumentation strategies, concepts, and word types that authors can use. While Anglin et al. (2018) come close to *style* when suggesting effective categories of words, several studies have looked at grammar, punctuation, and specific word use directly. Ishizaki (2016) offered a grammar suggestion ("many successful pitches also use the second person … to help the reader envision the use of their product") as well as a suggestion that quotation marks are "used by many successful pitches as well, including direct quotes and special terms that are double-quoted" (p. 3). Butticè and Rovelli (2020) suggested avoiding first-person singular pronouns, while Grebelsky-Lichtman and Avnimelech (2018) suggested using first-person plural pronouns like *us* and *we* instead. These studies identify elements of style but do not bring the findings together as a whole and suggest how these findings might work together to advance the goals of the creator in creating trust.

These findings, spread across many studies, suggest potential aspects of style that often appear in successful Kickstarter campaigns. Due to the high-stakes nature of crowdfunding, a large body of work has grown around determining the successful elements of Kickstarter campaign writing. These individual findings provide guidance on a range of specific textual issues. Yet questions about crowdfunding persist: "as crowdfunding continues to evolve at a rapid pace, more research is needed to better understand how different permutations of the genre make use of writing and multimodal elements to persuade potential backers" (Pope, 2018, p. 496).

Research Gap and Research Question

Questions of nuance, corpus size, generalizability, and interaction among findings remain regarding textual

analysis of Kickstarter campaigns. Some analyses leave open questions of nuance: Butticè and Rovelli (2020) questioned whether the correlation of singular first-person pronouns with failed campaigns reflects creators' narcissism or something else. Some studies considered small numbers of campaigns: Lins, Fietkiewicz, and Lutz (2018) considered 195,217 words from 221 campaigns, while Koch and Siering (2015) analyzed 762 campaigns. Concerns about the generalizability of findings appear in two ways. Grebelsky-Lichtman and Avnimelech (2018) selected campaigns regarding the topics of 3-D printers, mobile applications, iPhone stands, and organic food; positive or negative findings from these categories may not be representative of trends across all topics on the platform. Tirdatov (2014) approached the problem of topic breadth by analyzing the most-funded campaigns from 13 project categories. While solving the problem of scope, text from the most-funded studies may not be representative of the text from average campaigns. Studies that identify nuanced patterns of text from a large corpus would help technical communicators write in broadly stylistically acceptable ways on the Kickstarter platform. Finally, few studies show how stylistic elements interact in text or how creators can use stylistic elements together to work toward a goal.

Given a lack of style guides for social media platforms, the existence of users' expectations for professional content online, the high stakes of crowdfunding campaigns, and prior research on the subject, we developed a research question: What stylistic cues, as instantiated in patterns of text, are prominently associated with success in a broad sample of Kickstarter writing? To investigate this question, we used corpus analysis to identify textual patterns associated with successful or unsuccessful campaigns from 312,529 Kickstarter campaigns.

METHOD

This project used a multi-step, computer-aided process to develop and analyze a corpus of text representing the body text of Kickstarter campaigns. Technical communication scholars have used corpus analysis to analyze Kickstarter campaigns before. For example, Ishizaki (2016) investigated 901 campaigns; we expand on Ishizaki's approach by investigating 312,529 campaigns.

To begin the project, we scraped data from Kickstarter by modifying the software tool Quickscrape to gather data from as many campaigns as possible (Shuttleworth Foundation, 2014). Scraping is a common and viable method for researchers to assemble a significant corpus (Gallagher & Beveridge, 2022; Ryoba et al., 2021) and has been deemed permissible by American courts (Tse & Bryan, 2022). A hired coder used Quickscrape to systematically search through the pages of Kickstarter's discovery feature for campaign URLs in category/location pairs that Kickstarter allows (such as music projects in Montana or technology projects in Europe). While rare, type/region pairs containing more than 200 pages of campaign listings could not be scraped in their entirety. After collecting campaign URLs from each listing page, the coder used a scraping tool to harvest text, HTML tags, and embedded URLs of the campaign. Some pages presented atypically and could not be scraped effectively. The scraper ran for 24 days (May 31, 2018 to June 23, 2018). This scraper is available in a public GitHub repository accessible from the first author's website (Carradini, 2022).

In 2019, the authors scraped the URLs collected in 2018 a second time to fill in missing metadata. The second scrape iterated over the earlier list of URLs, using curl (a common scriptable website downloading tool) to save the entire HTML output of each page and a JSON object containing campaign metadata embedded in each page. A JSON object is a specially-formatted data record composed of regular text that can be read semantically by computer programs but also manipulated and transmitted as text, i.e., without special network or database connections. In each campaign's page, Kickstarter embedded a JSON object containing extensive metadata about that campaign. We subsequently extracted these JSON objects from the saved HTML pages using text-processing tools, forming the basis of our second dataset. We could not scrape the text of the campaigns during the second scrape because of changes in Kickstarter's server configuration. Thus, we combined the full text of each campaign captured by the first scrape with metadata from the second scrape (e.g. amount of money raised, location of campaign, project category) for our complete analysis.

Data Cleaning

Before cleaning the data, we developed a data structure, termed a *primary key*, to permit us to label information and connect each campaign's data across the two scraping efforts. A primary key, as understood in data science, consists of a unique identifier, which would identify a single campaign and no other. Our identifier used a combination of User ID and the campaign name, combined with an underscore (a character not permitted in either field and thus safe as a data separator). This information existed in both scrapes, and did not require the construction of an outside reference or tracking list (as would have been the case if we invented our own numbering scheme). An example primary key is *cooper_sushi-cop*, representing the campaign titled *Sushi Cop* by user Cooper. Despite their simplicity, primary keys are powerful and flexible data structures for text-based data, because a data table might hold many dozens of records associated with each individual primary key. A record can thus represent only a small fragment of data from the campaign, but can support extensive analysis in combination with other records from the same campaign using the same primary key.

Using the primary keys as a foundation, we built custom text processing tools (that we describe further below) to manipulate these datasets as streams of data, with the intent that each tool's output could provide a platform for the next data exploration. We only manipulated text using scripted tools, rather than interactive programs, so that our data transformations could be reproduced at any time with precisely the same results.

To clean the data, we eliminated broken or empty records. We also removed data from campaigns that were active at the time of the first scrape, because these did not reflect the conditions of successful/unsuccessful that we planned to analyze. For scrape 1, we generated primary keys as described above, then lightly cleaned the full text, including removing a common warning code about HTML5 that was an artifact of the scraping process and not part of the actual campaign text. For scrape 2, little cleaning was needed due to the structured nature of the data: we extracted the campaign metadata from the JSON object embedded in each page (checking for malformed JSON and fixing if necessary), generated the primary key, and saved output data files containing the primary keys and fields of specific interest.

We ultimately used text and metadata from 312,529 campaigns. Of those, 129,413 campaigns succeeded (41.4%); 155,438 failed (49.7%); and 27,678 (8.9%) reported some other status, such as canceled or suspended. Our corpus is a larger corpus than previous corpora used for textual analysis. Early prominent research studied less data: Mollick's (2014) study analyzed 48,526 campaigns, while Mitra and Gilbert's (2014) analyzed 45,815 campaigns. Ryoba et al. (2021) originally used a dataset that included 424,980 campaigns, but they ultimately analyzed the word count in 21,885 campaigns instead of alphanumeric text. We contend that a larger corpus increases the ability to draw widely applicable conclusions based on the text of Kickstarter campaigns.

Data Analysis

Our analysis relies on short combinations of words (called tokens) to enable analysis at scale. In contrast to previous work, we formed these tokens from words connected to each other by grammatical relationships instead of simple proximity (cf. Mitra & Gilbert, 2014). Instead of these three-word patterns, our approach sought to use verbs as the central item of our tokens because "verbs are the most central elements of clauses. They can express actions, events, states of affairs, and the like" (Aarts, 2011, p. 65).

To identify verbs, we ran a probabilistic grammar tagger library named Lingua::EN::Tagger (Coburn, 2019) on the text of each Kickstarter campaign. Lingua::EN:Tagger labels each word with a part of speech, using a modified version of the commonly-used Penn Treebank schema (Marcinkiewicz, 1994) for its tag set (See Appendix A for the list of tagged features). The tagger did not stem words but did separate possessive endings and contractions and then tagged those as separate words. The tagger distinguishes several categories of verbs: infinitive verbs, past tense verbs, gerund verbs, past/passive participle verbs, base present form verbs, present third person singular +s verbs, and modal verbs (See Appendix A for full description and examples). We included all words the tagger identified with these categories when constructing our verb pseudo-phrases.

Because the tagger only tags individual words, we constructed verb-focused pseudo-phrases for analysis by combining adjacent tagged verbs. In constructing verb pseudo-phrases, we looked for words with any of

these seven verb tags. We also included the preposition *to* as part of the pseudo-phrases representative of the infinitive form. We built the tokens from the inside out, beginning with a word tagged as a verb that moves backward and forward in the sentence. We discarded non-verb words adjacent to the verb, such as conjunctions, adjectives, and determiners. If we found additional verbs (or *to*), we added them to the verb pseudo-phrase.

Once we completed the verb pseudo-phrase, we identified the nouns on each side of the verb pseudo-phrase as the next step in token construction. For the purposes of token construction, we considered nouns to be anything tagged as such, including proper and plural nouns, plus possessive and second possessive determiners such as *mine*, *yours*, *their*, and *your* (tags NN, NNP, NNPS, NNS, PRP, and PRPS; see Appendix A). In this practice, we follow Aarts' (2011) classification of pronouns as a subclass of nouns: "Pronouns belong to the class of nouns because they can head noun phrases that can function as Subject, Direct Object, Indirect Object, Complement of a preposition…, and Predicative Complement" (Aarts, 2011, p. 44, capitalization original). We excluded the DET tag in our list, representing determiners (e.g., *this*, *each*, *some*). We felt these determiners failed to give us enough information to know what *this* or *each* represented in the context of the sentence. Thus, these words did not function in the same way as words we saw as subject Ns.

Hunting for components of the verb pseudo-phrase stopped when we encountered a noun, determiner, sentence beginning, or sentence end. We made no attempt to construct the tokens with noun phrases, as an experiment along these lines showed that the number of unique tokens would have ballooned. The number of shared tokens necessary for our discussion of shared language would have decreased substantially.

When we combine the words together, we create a modestly-sized token consisting of a noun, one or more verbs as a pseudo-phrase, and another noun (henceforth: NVVNs). This token is a rough approximation of a basic sentence structure, necessitated by the importance of keeping tokens short to permit computation and comparability. Still, tokens depict a far more powerful representation of the intent and construction of any particular sentence than could be captured by a bag-of-words approach characterized by any-three-consecutive-word tokens utilized in previous work.

This approach resulted in 19,208,610 NVVN uses, each connected to the campaign from which it originated by the primary key. We then removed NVVNs that appeared in only a single campaign, because we wanted to study language shared across campaigns. The final data contained 1,371,258 distinctive NVVNs appearing in two or more campaigns. See Table 1 for a list of most common NVVNs.

We constructed NVVNs using underscores to separate the part-of-speech positions within the token and hyphens to connect multiple words (if present) in the verb pseudo-phrase: we_are-asking_you. Generation of NVVNs respected sentence boundaries, so, not every NVVN actually includes two nouns: _thank_you (note leading underscore) indicates the NVVN features no opening, because thank likely opened the sentence in the campaign; similarly, it_happen_ (as in *let's make it happen!*) has a trailing underscore indicating no trailing noun exists. NVVNs which had no identifiable tagged noun prior to the beginning of the verb pseudo-phrase (such as a sentence with a determiner in the subject) have an underscore as the opening symbol: _is_my. The tagger identified verbs wherever they were in the sentence, and we built NVVNs from each of the verbs tagged; for example, the it_happen_ NVVN could be built from *let's make it happen!* As a result, not all NVVNs represent nouns surrounding the sentence's primary verb. NVVNs also captured all verbs between nouns, which means the verb pseudo-phrases we analyzed could range in size from one to many words: go or will-be-used-to-help.

One distinctive methodological element concerns cross-referencing text with success or failure, then mapping those values. To do this, we pulled the campaign status information from our second scrape and assigned the status of each campaign to every NVVN associated with it. We coded campaign success as +1, failure as -1, and other status (canceled, purged, or suspended) as 0. We totaled the uses of each textual object (any NVVN, or a component of one, such as a verb pseudo-phrase or noun) and generated an average success score (a number we call *score* throughout) that reflects its lean. If we found more instances of a textual object such as an NVVN in unsuccessful campaigns, the overall score for that NVVN would be negative; if

Elements of an Emergent Style Guide for Kickstarter

Table 1. Top 50 NVVNs (by number of uses)

Total Uses	Campaigns	Average Score	NVVN Token
47664	41384	0.1628692514	_thank_you
25534	22603	0.2168481241	we_need_your
8829	8180	0.2354740061	we_hope_you
8497	7841	0.02800988584	i_hope_you
8069	7488	0.05775188995	i_need_your
7817	7508	-0.005117052578	_please_help
7658	7081	0.1755027422	it_'s_
6965	6688	0.2215362527	you_have_questions
6630	6455	-0.01176470588	you_taking_time
6371	5910	0.1357714644	it_'s_time
6359	5988	0.01541122818	it_is_
5856	5519	0.09204234973	we_are_
5843	5466	0.06725996919	_is_we
5817	5226	0.1806773251	we_reach_our
5510	4833	0.266969147	you_want_
5211	4930	0.002302820956	they_are_
4895	4677	0.1801838611	it_happen_
4711	4487	0.08936531522	_is_our
4663	4616	0.2118807635	you_come_
4600	4071	0.00347826087	_do_you
4479	4292	-0.1163206073	_is_my
4465	3950	0.1480403135	we_want_you
4397	4093	0.0573118035	you_are_
4318	3648	0.3781843446	_please_note
4253	4003	-0.1478956031	_is_i
4099	3956	0.1439375457	we_need_help
4039	3746	0.1086902699	_are_we
4039	3841	0.03639514731	_is_it
3957	3776	0.1096790498	we_are_we
3873	3797	0.1296152853	_is_you
3851	3541	0.07868086211	_can_you
3840	3545	-0.03828125	it_is_our
3829	3562	-0.1679289632	it_is_my
3814	3592	0.249868904	_'s_we
3628	3331	0.0644983462	_do_we
3492	3349	0.2027491409	you_can_
3451	3311	0.1138800348	we_do_
3449	3264	-0.09683966367	it_is_time
3412	3149	-0.05041031653	i_am_
3248	3104	0.07974137931	_is_your
3124	3024	0.08578745198	_is_

Table 1. Top 50 NVVNs (by number of uses)

Total Uses	Campaigns	Average Score	NVVN Token
3082	2854	-0.02693056457	it_was_
3052	2447	0.1363040629	_can_i
3013	2843	0.183538002	we_need_you
2817	2703	0.3031593894	us_reach_our
2815	2634	-0.2110124334	i_know_i
2813	2630	-0.003554923569	it_was_time
2761	2646	0.2068091271	you_can-help_us
2761	2659	0.1923216226	we_can_
2719	2626	0.1213681501	we_thank_you

we found more instances of the NVVN in successful campaigns, the score would be positive. We truncated calculated scores after the third number for clarity (for example, -.178 or +.233 instead of +.233857364859). Table 2 includes a list of highest and lowest scores.

Our sample included an unequal number of successful and failed campaigns. On average, failed campaigns contained only about two-thirds as much text as successful ones, a finding noted in more detail by Ryoba et al. (2021). Because successful campaigns included more words than failed campaigns on average, we found an average of 70.18 NVVNs per successful campaign and 51.46 per failed campaign. Ultimately, successful campaigns used 48.5% of the 19.2 million NVVNs in our corpus, while failed campaigns used only 42.7% of the NVVNs. Due to this disparity, the baseline for negative and positive scores should be considered via separate scales.

Examining the 1,371,258 shared-language NVVNs, 561,795 of them had a positive overall score, representing 3,984,405 total uses. The average scores of these positive shared-language NVVNs ranged from +.001 to +1.000, with Quartile 1 (the value below which 25% of the data lies, also known as Q1) at +.153, the median at +.310, and Quartile 3 (the value below which 75% of the data lies, aka Q3) at +.555, with a mean of +.402. Examining only the 466,828 negative-scoring NVVNs, representing 2,519,752 uses, revealed very nearly a mirror image. For the negative shared-language NVVNs, the minimum was -.001 and maximum -1.000, Q1 was -.136, the median -.333, Q3 was -.551, and the mean was -.403. There were also 342,635 shared-language NVVNs, representing 926,368 uses, which had a score of exactly zero. The overall mean number of uses per unique NVVN is 5.41. The mean uses per NVVN for positive-scoring NVVNs is somewhat higher (7.09), while the mean uses for negative-scoring NVVNs is 5.39. NVVNs scoring exactly zero had 2.70 uses on average.

We can also extract the verb pseudo-phrases from the NVVNs to inspect them independently. The mean score for all verb pseudo-phrases is slightly positive (+.078). Examining the 5.6 million uses of verb pseudo-phrases that ended up with a positive overall average score, the non-zero positive scores ranged from +.001 to +1.000, with Q1 at +.052, median at +.081, Q3 at +.166, and the mean at +.135. Examining the 1.67 million uses of verb pseudo-phrases that scored negatively returns scores ranging from -.001 to -1.000, with Q1 at -.016, the median at -.044, Q3 at -.120, and the mean at -.106. We found 98,665 uses of verb pseudo-phrases which scored exactly zero on the scale (consider Table 3 for a list of highly positive and highly negative verb pseudo-phrase scores.) These two sets of scores offer a set of comparative statistics to keep in mind while evaluating the scores of the NVVNs and verbs below.

This rough sketch of the distribution of positive and negative NVVNs and verb pseudo-phrases above suggests some of the insights the data may yield. Note that the NVVN distributions, in both positive and negative directions, reflected a more even distribution across a broader range of scores than was the pattern with verb pseudo-phrases, where scores were clustered in a smaller range closer to zero. Every verb pseudo-phrase emerged from an NVVN, so this finding might be puzzling at first glance. We argue that this finding shows the extent to which the surrounding noun context matters for success. While some verb pseudo-phrases are strongly associated with success or failure

Elements of an Emergent Style Guide for Kickstarter

Table 2. Highly Positive and Highly Negative NVVNs Appearing More Than 500 times (top/bottom 25)

Total Uses	Campaigns	Average Score	NVVN Token
623	598	0.911717496	we_reached_our
565	544	0.8247787611	we_'ve-reached_our
601	540	0.7188019967	_increase_your
739	713	0.6752368065	we_have-reached_our
698	515	0.6318051576	we_hit_stretch
1398	1231	0.5708154506	campaign_ends_
528	499	0.5321969697	we_will-send_survey
524	449	0.5286259542	we_hit_goal
852	808	0.5082159624	we_did_it
882	710	0.4988662132	we_reach_stretch
1882	1707	0.4792773645	we_hit_our
1386	1337	0.468975469	recording_mixing_mastering
960	926	0.4572916667	we_love_you
568	553	0.4419014085	we_made_our
694	652	0.4409221902	you_'d-like_
848	812	0.4268867925	we_have_stretch
955	888	0.4167539267	campaign_is_
512	505	0.412109375	_'s_breakdown
1833	1712	0.4058919804	you_can_pledge
765	691	0.4039215686	you_would-like_
655	632	0.3954198473	kickstarter_is_
1283	1066	0.3943881528	we_'ll-send_you
508	406	0.3937007874	you_get_copy
945	895	0.3830687831	we_made_it
1319	1058	0.3805913571	we_reach_goal
——-	——-	——	——-
711	694	-0.2067510549	i_started_my
675	654	-0.2088888889	i_ask_you
1321	1290	-0.2104466313	i_have_my
2815	2634	-0.2110124334	i_know_i
518	497	-0.2123552124	i_have_time
548	523	-0.2153284672	i_lost_my
897	837	-0.2173913043	i_want_people
523	489	-0.2313575526	_imagine_you
581	566	-0.2323580034	i_am_process
650	631	-0.2415384615	i_have_ideas
888	857	-0.2443693694	i_want_my
655	634	-0.2458015267	i_was_child

Table 2. Highly Positive and Highly Negative NVVNs Appearing More Than 500 times (top/bottom 25)

Total Uses	Campaigns	Average Score	NVVN Token
581	564	-0.2581755594	i_know_my
873	829	-0.2749140893	i_need_money
628	592	-0.2802547771	i_have_experience
696	687	-0.3074712644	i_have_passion
1118	1088	-0.3157423971	i_believe_i
614	606	-0.342019544	time_to-read_my
865	844	-0.3433526012	i_came_idea
720	702	-0.3513888889	i_need_funds
560	540	-0.3642857143	i_believe_my
774	746	-0.3759689922	i_need_funding
861	841	-0.4367015099	i_am-raising_funds
586	584	-0.4709897611	god_bless_
834	834	-0.6366906475	_am-raising_funds

on their own, many others may depend on what other nouns accompany them to be strongly associated with successful or failed campaigns. The same verb pseudo-phrase may appear in a strongly-positive NVVN and a strongly-negative NVVN; these scores would tend to cancel each other out (given roughly similar scores), and drive the overall verb pseudo-phrase score closer toward zero. We argue that this dynamic reflects the value of examining verbs in the context of their surrounding nouns.

This method of identifying verb pseudo-phrases and NVVNs allows us to identify word patterns arranged around a central predicate and provide a nuanced understanding of the ways in which a verb pseudo-phrase's association with Kickstarter's success or failure might be a function of its context. This method permits transparency in both aggregation and disaggregation: we can build verb pseudo-phrase scores on the basis of thousands of uses, or conversely drill down from a verb pseudo-phrase to reveal nuances of use shaped by nearby nouns, verbs, and sentence boundaries. We can disaggregate a composite verb pseudo-phrase score to see which NVVNs contributed positively and negatively to the overall lean of a verb pseudo-phrase. Thus, we get a finer-grained understanding of what types of successful and unsuccessful word patterns occur together.

Limitations

This method relies on correlation. While verb pseudo-phrases are strongly or weakly associated with success or failure, correlation does not equal causation. None of the verb pseudo-phrase patterns we report in this article have scores of -1 or +1, which shows that every use of the verb pseudo-phrase existed in a failed campaign or a successful campaign (respectively). Even if we did include those, the correlation of each instance of a verb pseudo-phrase with failure does not suggest the causation that the use of any particular verb pseudo-phrase *caused* the failure of a campaign.

Our tools were not always ideal for the desired work, which is a limitation of many data-driven projects. We employed the probabilistic tagger Lingua::EN::Tagger, because manually tagging all of the words of the corpus would be unfeasible. This tagger produces strongly likely, but not guaranteed, outcomes. Thus, we agree with Itchuaqiyaq, Ranade, and Walton's (2021) finding that their tools were strongly assistive but could not get every case correct. The authors manually corrected tool output; while we could not manually correct every incorrect grammar tag in a corpus of 199 million total words, we manually checked our reported findings to make sure that the examples we used in this article reflected actual verb use and the broad intent of the phrases that included the verbs.

Some noise exists in the text data. The noise occasionally appears to result from strange characters

Elements of an Emergent Style Guide for Kickstarter

Table 3. Positive and Highly Negative Verb Pseudo-phrases Appearing More Than 500 Times (top and bottom 25)

Total Uses	Contributing NVVNs	Average Score	Verb Pseudo-phrase
1099	72	0.753	ve-reached
1357	258	0.733	unlocked
784	147	0.654	ve-added
810	120	0.652	have-pledged
2423	306	0.633	reached
1734	196	0.631	missed
550	59	0.618	can-add-to
988	91	0.593	has-ended
838	142	0.585	achieved
710	133	0.573	rest
886	179	0.535	unlock
1209	205	0.522	tuck
966	230	0.521	pressing
1042	44	0.52	ca-wait-to
1632	218	0.517	re-offering
1844	179	0.516	increase
509	26	0.507	tanned
823	186	0.507	have-added
1463	108	0.503	have-reached
13793	2701	0.501	add
1121	219	0.488	ll-add
576	43	0.488	could-have-done
2274	350	0.483	please-add
613	84	0.468	have-supported
699	191	0.465	added-to
——-	——-	——-	——-
569	108	-0.185	to-get-started
603	124	-0.189	am-creating
963	91	-0.19	am-doing
1557	270	-0.192	am-working
641	172	-0.193	treats
758	138	-0.202	want-to-provide
556	186	-0.203	to-assist
521	52	-0.205	want-to-raise
1430	291	-0.208	noticed
1497	452	-0.21	to-sell
1076	324	-0.217	to-open
1151	309	-0.222	is-to-provide

Table 3. Positive and Highly Negative Verb Pseudo-phrases Appearing More Than 500 Times (top and bottom 25)

Total Uses	Contributing NVVNs	Average Score	Verb Pseudo-phrase
626	89	-0.224	would-use
1785	250	-0.227	plan
678	60	-0.246	am-hoping
640	161	-0.258	to-eat
1036	116	-0.272	plan-to-use
994	29	-0.307	m-raising
616	21	-0.338	thought-to
983	136	-0.378	am-looking
912	72	-0.382	am-seeking
1310	64	-0.404	bless
535	45	-0.422	am-trying-to-raise
2419	47	-0.469	am-raising
517	117	-0.485	want-to-start

(especially letters from odd fonts used for decoration), as well as non-sentence constructions such as some bullet points and headlines. We filtered out this noise during the data-cleaning process. The tagger does not perfectly identify all terms, especially regarding vernacular English and non-English words. The tagger applies the tag for common noun if the particular grammatical function of a word cannot be determined. Some noise artifacts ended up smashing together adjacent words or eliminating sentence boundaries. These kinds of noisy artifacts have the side-effect of generating long, unique NVVNs. Since we sought common uses rather than rare ones, these noise-impacted tokens made little difference in our data routines. If future researchers pursued unusual words, these deficiencies might be worth addressing with manual correction of input text or removing with additional filters.

Note too, that the constructed verb pseudo-phrases hyphenated within the NVVN tokens are composed only of words identified by the tagger as one of several kinds of verbs (as well as the word *to*). As mentioned above, the verb pseudo-phrases omit any other word (such as *a*, *the*, or *not*) between the two N's. This process helps enhance comparability, but caution should be exercised when reading verb pseudo-phrases in a way where negation (*not*) or article specification would be significant. We did not see this concern as a problem for our analysis because each use of every NVVN can be traced back directly to the full text of the specific campaign in which it appeared. We checked our reported results to ensure that we did not report a verb pseudo-phrase as projecting positively when it included (in context) a negation.

Example

We can demonstrate this method with several forms of the verb *thank*. A few frequent verb pseudo-phrases regarding the verb *thank* are thank, ca-thank (explained below), want-to-thank, and would-like-to-thank. If we consider all *thank* variations together, verb pseudo-phrases including *thank* have an overall positive valence of +.150 with 86,938 NVVN uses. The overall score of the verb *thank* is positive, as revealed across the scores of all the pseudo-phrases incorporating this word. Yet these four verb pseudo-phrases have varied average scores.

The verb pseudo-phrase thank (i.e., the word *thank* used without any other supporting verbs) is ultimately associated more often with success than failure (+.156, 74545 uses). The verb pseudo-phrase thank appeared most commonly in the NVVN _thank_you, representing the short text phrase *Thank you*. We would conclude that thanking people with *Thank you* is a common, slightly positive tactic.

The verb pseudo-phrase ca-thank returned a +.455 score (593 uses). This verb pseudo-phrase commonly represents the phrase *can't thank you enough*. (The verb pseudo-phrase looks unusual because the grammar tagger split the contraction of *cannot* into *ca* and

n't, then excluded *n't* from the verb pseudo-phrase because *n't* is not a verb. In this case, we manually checked the verb pseudo-phrase and NVVNs to confirm what the output meant.) This very strong score means that creators say *can't thank you* [*enough*] in successful campaigns more often than in unsuccessful ones. Despite its strong relationship with success, many fewer ca-thank tokens exist than thank tokens. Relative relationships between scores must always be remembered when dealing with disparate numbers of use cases.

The verb pseudo-phrase want-to-thank scored less positively than thank or ca-thank, coming in close to 0.0 (only +0.075). Sentences that use want-to-thank appear with almost equal frequency in successful and unsuccessful campaigns. Therefore, future creators may not be helped or harmed by using want-to-thank. Another variation, would-like-to-thank (-0.072, 1,251 uses) features a slightly negative overall score. Unsuccessful campaigns used this language only slightly more often than successful ones. The implication seems clear to creators contemplating what language to use in a new campaign: thanking patrons is often associated with success, but some ways of thanking are more effective than others.

These distinctions between types of constructions of *thank* indicate that trying to assess individual verbs—much less individual words—obscures diverse work that goes on within verb pseudo-phrases. Assessing individual NVVNs provides a level of nuance not currently applied to this problem.

RESULTS AND DISCUSSION

We identified four findings that reflect distinctive stylistic elements associated with success: *we* vs. *I*, informal language, invitational language, and confidence language.

We vs. *I*

In Kickstarter, using *we* in campaign language proves to be more effective than using *I*. We discovered this finding in several ways.

First, we discovered that verb pseudo-phrases starting with am are often somewhat-to-highly negatively associated with success: am (-.144, 46804 uses), am-asking (-.125, 2812 uses), am-raising (-.469, 2419 uses), am-working (-.192, 1557 uses), and am-looking (-.378, 983 uses), among others. We found that NVVNs with an *am* in the leading verb position are primarily associated with the noun *I* as the leading N in our corpus, suggesting that the two-word phrase *I am* is more likely to be present in unsuccessful campaigns than successful ones.

Looking specifically at am reveals a tendency for authors to invoke personal narrative using *I am*. NVVNs such as i_am_mother (-.536 average score, with 177 uses), i_am_father (-0.375, 112), and i_am_veteran (-0.690, 84) point toward strong negative relationships with success. The professional narrative also does not bode well: terms such as photographer (i_am_photographer, -0.330, 312), doctor (i_am_doctor, -0.320, 25), and executive (i_am_executive,-0.296, 27) are also negatively associated with success. Given that pitches often begin with explanations of who the entrepreneur is, this finding suggests that readers may not expect or appreciate certain types of personal and professional narratives.

Building on this preference against *I*, we found a direct preference for *we*. Consider NVVNs related to the verb assure. I_assure_you scored fairly negatively: -.217 (331 uses). Yet the score of we_assure_you almost exactly inverted i_assure_you: +.214 (121 uses). we_assure_you is more likely to occur in successful campaigns, even though creators mention we_assure_you less often than i_assure_you. This trend holds for many other verb patterns:

- we_know_you (+.220, 1916 uses) vs i_know_you (-.029, 1515 uses);
- we_need_help (+.143, 4099 uses) vs i_need_help (-.132, 2519 uses);
- we_believe_it (+.092, 1167 uses) vs i_believe_it (-.156, 1361 uses);
- we_ask_your (+.199, 491 uses) vs i_ask_your (-.097, 268 uses);
- we_can-raise_money (+.262, 282 uses) vs i_can-raise_money (-.239, 146 uses);
- we_have-created_ (+.258, 147 uses) vs i_have-created_ (-.047, 170 uses);
- we_have_music (+.227, 158 uses) vs i_have_music (-.179, 106 uses).

These patterns illustrate a trend that we found in NVVNs associated with many different verbs. Phrases using *we* as the primary noun in an NVVN were more prominently associated with successful campaigns, while the same phrases using *I* more commonly appeared in unsuccessful campaigns. We tested this

finding an additional way by applying our scoring system to the leading nouns of all NVVNs and found that we and I were the two most common leading nouns. The pronoun we scored +.155 with 1,102,236 total uses, while I scored -.064 with 889,060 total uses. *We* was much more likely to be successful than *I*, suggesting that Kickstarter readers have a preference for campaigns that write from a plural perspective.

We found a few areas where solo language was associated with success. The verb pseudo-phrases am-recording and ‘m-recording scored +.557 with 131 uses and +.670 with 100 uses, respectively; the verbs am-releasing and ‘m-releasing fared nearly as well, with scores of +.404 with 57 uses, and +.580 with 50 uses, respectively. Recording and releasing suggest artistic ventures (recording an album, releasing a comic book); as we mention below, solo artists and musicians create credibility and trust in the reader in other ways.

Ultimately, readers seem to prefer *we* language to *I* language, with some exceptions. We argue that the context of the speculative venture may favorably influence readers' opinions toward teams running campaigns (as instantiated in *we*) instead of individuals running campaigns (as instantiated in *I*). Given Kickstarter's mandate to backers to assess whether a campaign can “bring a project to life,” teams of people may seem more trustable (even if only through multiple people believing in and working on the idea) to complete a project than an individual (Kickstarter, PBC, 2022a).

Furthermore, using *we* is a successful convention, as our large numbers of cases show: writing from a stance of *we* accords with, and may invoke, previous or similar campaigns that have succeeded to the reader. Meeting the audience's stylistic expectations shows a level of fluency with the platform that reflects well on not only being able to “bring a project to life” but also perhaps also “deliver the rewards they've promised to backers” (Kickstarter, PBC, 2022a). Speaking in conventional ways (as shown below) may inspire trust in readers.

Informal Language

Informal language played a complex role in our corpus. Contractions were often associated with successful campaigns, while phrases associated with the term *bless you* were strongly associated with unsuccessful campaigns. These two findings suggest that Kickstarter readers have complex expectations for the conventions of informality.

Contractions offered a specific case. In many verbs, the contraction form of a verb strongly associated with success, while the full version associated with failure. Verb pseudo-phrases containing contractions are routinely associated strongly with success. For example, the mean success score for the top 500 most frequent verb pseudo-phrases was +.091 (Min: -.469, 1stQ: +.008, Med: +.072, 3rdQ: +.158, Max: +.633). Twenty-six of those 500 verb pseudo-phrases included a contraction of some kind (e.g., ‘re, ‘m, ‘ve-been; our grammar tagger split contractions, so our output contains partial contractions functioning as their own verb). Those common contraction verb pseudo-phrases showed a mean success score of +.275. The highest score was +.442 for ‘ll-get (5754 uses), with ‘ll-send (+.431, 2650 uses) and ‘re-asking (+.401, 1866 uses) close behind. The worst-scoring popular verb pseudo-phrases involving a contraction were ‘m-asking (+.062, 1880 uses) and ‘m (+.064, 29077 uses), but these two were still associated slightly more with success rather than failure. Moreover, of the 26 common verb pseudo-phrases including a contraction, these were the only two which scored below the median for the 500 most common verbs.

Examining a contraction with its full equivalent highlights the success skew in favor of contractions. Examples of verb pseudo-phrases involving am or ‘m are a useful way to highlight this because they would not show the effects of the preference for *we* vs. *I* explored in the previous section. Consider the base verb: am has a somewhat negative average success score of -.144 (46804 uses), while its contraction form, ‘m, has a mildly positive association with success: +.064 with 29077 uses. More complicated phrases show the same pattern, where the full form has a much more negative average success score. For example, ‘m-asking (+.062, 1880 uses) associates positively with success, while am-asking associates negatively with success (-.125, 2812 uses). Other examples include:

- ‘m-making (+.277, 593 uses) vs. am-making (-.033, 769 uses),
- ‘m-excited (+.228, 224 uses) vs. am-excited (-.030, 197 uses).
- ‘m-doing (+.091, 1034 uses) vs. am-doing (-.190, 963 uses), and

Table 4. Highly Positive/Negative Trailing Nouns Appearing More Than 500 Times (top/bottom 25)

Total Uses	Contributing NVVNs	Average Score	Trailing Noun
1012	239	0.749012	add-ons
521	107	0.721689	ons
617	154	0.670989	customs
2774	437	0.614636	pdf
11359	1502	0.559644	stretch
565	136	0.557522	tracking
2897	249	0.54194	survey
595	76	0.541176	pre-order
4686	1120	0.533931	record
957	274	0.527691	vinyl
533	105	0.515947	6,000
592	195	0.510135	pins
582	178	0.501718	tabletop
578	196	0.49827	cds
1643	361	0.489957	bonus
4613	445	0.488619	mastering
513	165	0.487329	pin
10130	1974	0.481935	shipping
13448	2631	0.48141	album
821	164	0.470158	tiers
782	200	0.461637	london
1191	145	0.460957	tax
536	108	0.453358	touring
1621	472	0.449722	comics
863	126	0.448436	commission
——-	——-	——-	——-
3486	968	-0.236661	market
786	250	-0.240458	sales
1399	256	-0.245175	capital
672	126	-0.251488	utilized
8705	1964	-0.255141	business
524	99	-0.257634	uploaded
980	126	-0.258163	upload
821	210	-0.264312	cooking
500	95	-0.266	baking
2760	723	-0.272464	marketing
740	220	-0.27973	inventory

Table 4. Highly Positive/Negative Trailing Nouns Appearing More Than 500 Times (top/bottom 25)

Total Uses	Contributing NVVNs	Average Score	Trailing Noun
1332	410	-0.286036	service
1091	347	-0.292392	customers
579	179	-0.295337	sports
1935	560	-0.298708	user
973	155	-0.300103	mother
795	224	-0.338365	application
636	196	-0.341195	millions
1949	463	-0.355567	users
1214	271	-0.355848	patent
4733	1087	-0.39045	website
1348	407	-0.393917	clothing
920	276	-0.4	advertising
818	250	-0.418093	restaurant
4587	1083	-0.438413	app

- ‘m-creating (-.013, 223 uses) vs. am-creating (-.189, 603 uses), and
- ‘m-hoping (exactly even, .000, with 807 uses) vs am-hoping (-.246, 678 uses).

The pattern of the contraction scoring recognizably higher seems to have been operative in nearly all cases. This finding held true whether the phrases themselves were relatively positive, such as ‘m-offering (+.352, 699 uses) vs am-offering (+.137, 1079 uses), or both relatively negative, such as ‘m-raising (-.307, 994 uses) vs am-raising (-.469, 2419 uses) or ‘m-seeking (-.196, 204 uses) vs am-seeking (-.382, 912 uses).

The positive association with contractions seems to hold true in the case of other words. For example, consider ‘ll-add (+.488, 1121 uses) and will-add (+.249, 3097); ‘ll-ask (+.511, 315 uses) and will-ask (+.216, 945 uses); and ‘ll-be (+.336, 6719 uses) and its full equivalent will-be (+.042, 82448 uses). The number of uses of these three verb pairs is somewhat-to-greatly unbalanced in favor of the full version of the verb; these numbers contrast with the numbers for am vs ‘m, which often had similar or even exactly the same number of uses for both forms. With due caution in interpretation for more unbalanced pairs, the pattern established with ‘m and am seems to hold for other contractions as well.

We also found that the *we* vs. *I* finding interacts with the contractions finding to produce strong effects regarding the verbs ‘m, am, ‘re, and are. This interaction can be seen in verb pseudo-phrases, including the verb *asking*: ‘re-asking (+.401, 1866 uses), are-asking (+.113, 4934), ‘m-asking (+.062, 1880), and am-asking (-.125, 2812). *We* plus a contraction resulted in better scores than *I* plus a full verb. Yet the strength of the we-plus-contraction finding is reflected by the we-plus-full-verb version (*we are asking*), also scoring higher than the I-plus-contraction version (*I’m asking*). Verbs surrounding *seeking* perform similarly: ‘re-seeking (+.240, 154 uses); are-seeking (-.076, 1690), ‘m-seeking (-.196, 204), and am-seeking (-.382, 912). In many examples concerning these four forms of am-plus-verb-type, the we-plus-contraction language scores the best. This pattern includes verbs that are:

- Very positive overall: ‘re-offering (+.517, 1632 uses), are-offering (+.278, 3976 uses), ‘m-offering (+.352, 699 uses), and am-offering (+.137, 1079 uses)
- Mostly negative overall: ‘re-looking (+.251, 1273 uses) vs are-looking (-.107, 3397 uses) and ‘m-looking (-.109, 676 uses) vs am-looking (-.378, 983 uses)
- Varied: ‘re-working (+.373, 831 uses), are-working (+.028, 3488 uses), ‘m-working (+.062, 930 uses), am-working (-.192, 1557 uses)

Using *we* and contractions together often indicates strong outcomes; using *I* and full forms of verbs together often indicates poor outcomes.

Yet we also found some informal language strongly associated with unsuccessful campaigns. One prominent category of verb pseudo-phrases strongly associated with unsuccessful campaigns can be perceived as interpersonal statements instead of professional statements. For example, the verb bless has a distinctly negative score (-.404, 1310 uses), as does blessed (-.349, 86 uses). Unsurprisingly, NVVNs using this term feature similarly negative scores: god_bless_ (-.470, 586 uses; the trailing underscore shows that this verb pseudo-phrase appeared at the end of a sentence) and god_bless_you (-.460, 419 uses) exist much more commonly in unsuccessful campaigns than successful ones. *Bless you* is a phrase spoken often in interpersonal contexts. In the situation of being spoken after a person sneezes, Arnovick (2000) argued that "some speakers intend *Bless you* as a religious blessing. They mean literally what they say. Some remember the superstition and its call for a quick 'Bless you' or 'Gesundheit.' Some speakers recognize both forms as a vague wish that the sneezer stay well or regain good health. Still, others are motivated solely by politeness" (p. 122, italics original). While the asynchronous, digital mode of Kickstarter campaigns differs from the synchronous, co-located experience of a sneeze, the uses of *bless you* and its variants seem similar. Whether a Kickstarter creator offers a literal blessing or speaks only from politeness, neither of these motivations point toward professional activity. *Bless you* may be a level of interpersonal familiarity too informal for readers to support. Further research could consider other statements of politeness or idioms to determine whether *bless you* is a specific case or indicative of a wider rejection of interpersonal communication styles.

Ultimately, the conventions we discovered surrounding informal language speak to how well creators understand the platform's conventions. The level of informality suggested by contractions is generally accepted positively by readers of the platform. The level of informality that *bless you* brings to the project is not generally accepted positively by readers of the platform. We argue that understanding the appropriate level of formality on the platform shows that the creator understands the conventions of the platform. A creator's understanding of the platform's conventions may encourage readers to trust that the creators' (perceived) familiarity with the platform can translate into an effectively completed campaign.

Appropriate levels of informality are not the only way that writers build the reader's trust in Kickstarter campaigns, though. Writers also build reader trust via invitational language.

Invitational Language

Creators successfully used language inviting the reader into the campaign. We found successful correlations surrounding verbs that invite the reader to join the campaign, make the reader feel helpful to the campaign, and remind the readers of what items and experiences they will get from the campaign.

The positive scores of the verb pseudo-phrase 'll-join (+.435, 526 uses, including NVVN phrases such as you_'ll-join_me [+.396, 116 uses] and you_'ll-join_us [+.454, 337 uses]) and please-join (+.136, 1417 uses, including _please-join_us [+.171, 770 uses], _please-join_our [+.343, 131 uses], and _please-join_me [-.021, 326 uses]) suggest that asking the reader to *join* the project is a good move. *Please join us* reflects a mildly positive score, while *Please join our* shows a more strongly positive score. However, *please join me* returns an almost neutral score, showing that the positive associations with *join* may be outweighed by the negative aspects of being a solo campaign runner. While *please join* is a single example, the finding that *us* and *our* score more positively than *me* in this construction suggests that the *we* vs. *I* finding from above may hold for various pronoun types, such as object pronouns and possessive pronouns. Further research on types of pronouns and their effectiveness would be warranted.

Inviting the readers to participate in marketing the campaign is often associated with success: us_get_word (as in, *help us get the word out*) is effective, scoring +.161 with 482 uses. Other verb pseudo-phrases that suggest user involvement include ca-do (+.215, 2736 uses, as in *can't do this without you*) and will-help (+.105, 18831 uses, as in *you will help us* and *your support will help us*). These findings point toward an emotional reward for being part of the project: the feeling of being helpful or necessary.

While writers should invite the reader to attain the emotional reward of being part of the project, Kickstarter requires the goal of each crowdfunding campaign to be something created: "every project needs a plan for creating something and sharing it with the world" (Kickstarter, PBC, 2022b). Thus, suggesting things the user will *get* represents another way of

inviting people into the campaign. The verb 'll-get is strongly positively associated with success (+.442, 6367 uses). Examining the trailing nouns of NVVNs beginning with you_'ll-get_(x) shows a clear and strongly positive inclination toward concrete rewards: copy, access, everything, rewards, it, kinds, chance, pdf, download, book, set, rewards, something, and game, among others. The only trailing noun with a weak positive score is chance, from the NVVN you_'ll-get_chance (+.026, 75 uses), which suggests backers may avoid uncertainty. We discuss uncertainty language more below.

Another set of strongly positive words relates to getting rewards: NVVNs you_get_your (+.190, 1896 uses), you_get_ (+.185, 1483 uses), _get_your (+.237, 1271 uses), you_get_you (+.122, 939 uses), and you_can-get_your (+.370, 853 uses), as well as the verb pseudo-phrase will-receive (+.286, 21750 uses) are all positive correlations. The verb pseudo-phrase 'll-send (+.431, 2650 uses) includes we_'ll-send_you (+.394, 1283) and i_'ll-send_you (+.434, 469). These verb pseudo-phrases speak confidently about the rewards that the supporters of the campaign will receive. This focus on rewards associates so strongly with success that the finding represents a rare case where an *I*-focused term (*I'll send you*) is more positively associated with success than a *we*-focused version of the same term (*we'll send you*), albeit with far fewer uses. We would argue, then, that showing facility with the conventions of running a campaign (as instantiated in knowing how to fulfill rewards) may help readers trust that creators can "deliver the rewards they've promised to backers" (Kickstarter, PBC, 2022a). In other words, explaining the delivery process for rewards may be a way for solo writers to distinguish themselves as unusually trustable solo creators.

The verb will-contact (+.322, 1253 uses) also refers to the rewards process. Campaign creators must contact the backers after the conclusion of the successful campaign to acquire details about the rewards fulfillment (such as mailing address, reward options, and other technical concerns). The most commonly used NVVNs here are we_will-contact_you (+.370, 789 uses) and i_will-contact_you (+.445, 184 uses). These NVVNs, as well as NVVNs that describe the contact process in further detail (we_'ll-send_survey, +.578, 171 uses; i_'ll-send_survey, +.666, 48 uses), hold the same pattern from *We/I'll send you* of being strongly positive for the we-focused term and even more strongly positive for the less-used *I*-focused term. This language may be successful because less successful campaigns omit specific references to rewards. Ultimately, being detailed and positive about rewards is associated strongly with success, especially for individual creators.

In a speculative context where success is not guaranteed, inviting readers to join the campaign (and take on a small measure of the speculative risk through funding) may seem an unusual way to garner support for a campaign. Yet the ways the invitations function in the campaign suggest a familiarity with the experience of Kickstarter campaigns: Kickstarter campaigns have both emotional and practical benefits for the readers. The creator who reflects awareness of both benefits in prose may demonstrate a familiarity with the platform's conventions that builds trust.

Confidence Language

Several verbs looking forward to the success of the campaign score strongly positively: hope (+.122, 29358 uses) and hope-to-see (+.193, 1099 uses). The verb pseudo-phrase ca-wait-to (as in *can't wait to*, +.520, 1042 uses) is also a surprisingly positive way of confidently looking forward.

Looking forward is good, but looking forward confidently is better. The verb reach is often used to describe future and already achieved fundraising goals and strongly associated with success (+.296, 21557 uses). NVVNs such as we_reach_goal (+.380, 1319 uses), we_reach_stretch (+.498, 882 uses), and we_reach_level (+.605, 233 uses) reveal what will happen at specific intervals: the word *goal* is often used to describe the financial goals of the campaign, while *stretch* and *level* often describe reaching a goal beyond the original financial goal (*stretch goals* or extra *levels* of funding to unlock new rewards). Other campaigns offer more detail, telling readers about what can be expected when a specific number of dollars is raised or number of people contributing is reached: we_reach_10,000 (+.369, 195 uses) and we_reach_100 (+.404, 99 uses). The value of specific goals can be seen when aggregating the average score for we_reach NVVNs by whether a number or a letter opens the second noun position. Both scores are positive, but we_reach_*NUMBER* NVVNs score more positively (+.509, 3468 uses) than we_reach_*WORD* (+.302, 10476 uses) NVVNs. Looking forward

confidently with detailed expectations of what will occur at certain checkpoints is a strong way forward.

Some writers inject unnecessary uncertainty by overly qualifying their verbs. Consider the case of the modal verb *would*, which can be used to describe the future with an implication of greater uncertainty than a modal verb like *will*. Overall, all verb pseudo-phrases beginning with would collectively scored slightly negatively (-.041, 83125 uses) compared to all verb pseudo-phrases beginning with will, which collectively scored positively (+.065, 502705 uses). Comparing some of the most common forms of this verb shows an association between projecting certainty by using the word *will* and project success. For example, will-be (+.042, 80379 uses) scores a bit higher than would-be (-.001, 14177 uses). The pattern holds true with the verb pseudo-phrase will (+.050, 33300 uses) vs. pseudo-phrase would (-.063, 9573 uses) and will-help (+.105, 18831 uses) vs would-help (-.034, 1278 uses). The tilt toward a more positive score for *will* over *would* remains, even if both verbs' pseudo-phrases score negatively: will-have scores slightly negatively (-.044, 22143 uses) but would-have scores worse (-.110, 1496 uses). The difference remains when the score of the would form is associated with success, as in would-receive (+.200, 80 uses) vs will-receive (+.286, 21750) and would-get (+.005, 372 uses) vs will-get (+.230, 12695 uses). Creators use the word would in conjunction with other words that suggest uncertainty, such as like. These constructions score negatively on average: All verb pseudo-phrases beginning with would-like have an average score of -.040 across 19781 uses.

Ultimately, writers should project confidence and avoid uncertainty. Using a modal verb that suggests certainty (will) demonstrates that the creator is confident in claims, which may translate to overall confidence in their own ability to complete the campaign effectively. Using a modal verb reflecting uncertainty (would) demonstrates that the creator is not confident in claims, and is perhaps less confident that the campaign will succeed. We argue that readers can better trust a creator who is confident in their own claims (and, by extension, abilities) rather than one who is not.

CONCLUSION

Style guides allow technical communicators to write text deemed acceptable by an organization. In this paper, we identify types of textual patterns that users of Kickstarter find acceptable, as evidenced by the textual patterns' inclusions in successful campaigns. These patterns represent elements of an emergent style guide for Kickstarter that can help entrepreneurs communicate effectively on the platform. While our findings on their own offer guidelines, together they form evidence of a set of reader expectations for Kickstarter campaigns, drawn from the decisions of groups of readers to fund or not fund campaigns that include certain types of arguments and phrases (as determined by the prominent NVVN word patterns we identified). See Table 5 for a list of findings with guidance for entrepreneurs, technical communicators, and entrepreneurial technical communicators.

Beyond the individual findings in Table 5, we argue that these findings interact with each other in distinctive ways. Texts are not mere collections of words; words reflect attempts by writers to convey meaning through a text. Style contributes to that making of meaning. The goal of a style guide is not simply to ensure consistency across texts but also to ensure the *acceptability* of texts (Adhya, 2015, p. 184). Each element of style contributes to the acceptability of a document as perceived by the organization that made the style guide; in this instance, we have developed an emergent style guide that reflects what users across the platform broadly see as acceptable (as evidenced by what elements of style more often appear in successful campaigns than unsuccessful campaigns). Yet even with acceptability (as instantiated in a successful campaign) as a goal, the writer should not dogmatically reproduce the findings of the style guide. Instead, writers should understand how these findings work together to produce acceptable writing. Thus, we argue that some findings directly interact with and mediate each other, while all of the findings work together toward a specific goal: getting the reader to trust that the creator can bring the project to completion.

First, some findings work together directly. We found that *we* vs. *I* and contractions often work together in successful campaigns: phrases such as *we're offering* and *we're looking* are much more commonly associated with success than we-plus-full-verb constructions, I-plus-contraction constructions, and I-plus-full-verb constructions (the last of which almost always scored the worst in the set). Two effective stylistic practices working in tandem often point toward an even more successful stylistic element.

Table 5. Summary of Findings with Guidance for Technical Communicators. (A finding with an asterisk indicates a finding from the literature that we did not investigate or validate in this study.)

Finding	Guidance	Previous Study
We vs. I	Write in teams that can use *we* instead of *I*	Butticè & Rovelli (2020, p. 3, 5) Grebelsky-Lichtman and Avnimelech (2018, p. 4182, 4190)
	Avoid personal narratives centered around professional roles and *I am*, such as *I am a photographer*	
Informal language	Use verb contractions (e.g., *we'll get, we'll send, we're asking)* instead of full forms	
	If necessary to use I, use *I'm* instead of *I am*	
	Avoid the overly interpersonal exhortation *bless you*	
Invitational Language	Invite the reader to *join* the campaign	Mitra & Gilbert (2014)
	Make the reader feel helpful or even necessary to the campaign	
	Remind the readers of what items and experiences they will get from the campaign	Mitra & Gilbert (2014)
	Use the pronoun *you**	Ishizaki (2016) suggests "many successful pitches also use the second person … to help the reader envision the use of their product" (p. 3)
Confidence Language	Project confidently	Anglin et al. (2018) Ishizaki (2016)
	Use modals reflecting certainty like *will* instead of terms reflecting uncertainty, like *would*	
	Include language about what will happen when the campaign succeeds	Mitra & Gilbert (2014)
	Avoid uncertainty language like *wish* and *chance*	
	Use quotation marks to set off special terms*	Ishizaki (2016)

Team language and invitational language also intersect in distinctive ways. While we found an overall preference for *we*-focused language across many campaigns, we also found that invitational language intersected with *I*-focused language to produce an unusual result. One form of invitational language concerned telling readers about the campaign process as a way of inviting them into the process. *I*-focused language that indicated the solo creator's preparation to fulfill rewards (such as *I'll send you* or *I'll contact you*) represented the rare place where *I*-focused language scored better than the *we*-focused version of the same verb pseudo-phrase. We argue that the preference for *we*-language is due to readers trusting teams to complete a project more often than trusting individuals. This level of trust may reflect the complexity of running a

successful campaign and completing the project that campaign funds. Creators must create and deliver the product or experience that the Kickstarter campaign represents, then create and deliver the rewards promised to the backer (if the rewards for funding the project differ from the product or experience being created, which is often the case). Subject matter expertise and fulfillment expertise are both necessary. Some types of projects (such as technology or theater projects) may require more expertise than a single person is perceived to have; teams may have more subject matter expertise and would be potentially more trustworthy. Teams of people may also be more trusted to complete the fulfillment of rewards, as people can be perceived to take on specialized roles within the team or at least divide the work of fulfillment over more than one person.

Conversely, *I*-focused invitational language surrounding the process of rewards may be a convincing way for the individual creator to show their competence and understanding of how to complete a campaign. Demonstrating that the single creator has considered the process of fulfillment may differentiate the solo creator from creators that have not written about fulfillment. Solo creators who do not mention fulfillment may be perceived to have not thought about fulfillment deeply. The audience may also perceive these solo creators to be less prepared to fulfill rewards than solo creators who did mention fulfillment. In these ways, we found that stylistic elements interacted with each other to produce effects that would not be expected via a single stylistic element alone.

These two intersections of stylistic elements—*we* vs. *I* and informal language—point to a concern with professionality, and we argue that many of the elements in this emergent style guide point toward a need in Kickstarter writing: development of the reader's trust. The preference for team language instead of solo language suggests that teams may be perceived to be more competent or capable than solo creators. Kickstarter readers seem to expect a certain level of informality as a marker of confidence (and therefore competence), while rejecting too much informality (such as *bless you*) as a sign of a too much interpersonal language and a lack of professionality (and therefore potential lack of competence). Invitational language regarding rewards also suggests that writers understand the conventions of the platform: writers who understand that the reader may desire both a physical reward and an emotional benefit of being part of something bigger than themselves can demonstrate this knowledge and potentially be perceived as competent. Confidence language attempts to directly display competence through demonstration of assurance that the project will succeed. Each of these types of language makes an effort to show the reader that the reader can trust the creator to "bring the project to life" (Kickstarter, PBC, 2022a). With instances of each of these types of language being individually positively associated with success, we would expect that the interaction effect of all of these working together would be positive as well. But we again argue that the individual words of the campaign do not represent the reason campaigns succeed. Instead, each of these findings help signal a critical aspect that readers appear to look for in Kickstarter campaigns: the ability to successfully complete a campaign.

In addition to these new findings, we offer validation to previous findings with a larger data set. Previous studies have noted that *we* language associates with success (Grebelsky-Lichtman & Avnimelech, 2018). We found that, for the same verb, the verb pseudo-phrase beginning with *we* almost always associated more positively with success than the verb pseudo-phrase beginning with *I*. This finding may reflect a trust issue: a group of professionals saying *we assure you* may look more trustworthy than a single person saying *I assure you*. *We would appreciate support* may look like a professional organization giving a pitch, while *I would appreciate support* may look unprofessional and rely too much on pathos. Given the low bar to creating a Kickstarter campaign, several of the cues that people look to when determining to support a campaign or not appear to be markers of prior competence or professionalization. Thus, we would add "signals capacity to complete tasks of the campaign" to the list of things that Grebelsky-Lichtman and Avnimelech (2018) noted that *we* can do in Kickstarter campaigns: "Using plural pronouns such as *us* and *we* demonstrates immediacy in communication, brings people together, and highlights commonalities" (p. 4182, italics original).

Similarly, our study does not negate the idea that *I*-focused language may be associated with narcissism (Butticè & Rovelli, 2020), but we would suggest that *I*-focused language may be associated with a lack of capacity or ability to complete a campaign. Our

study and that of Butticè and Rovelli (2020) found an exception in the use of *I* for comics and music. Butticè and Rovelli (2020) argued that “in industries where the product value is foremost associated to the product functionality (e.g., the content of a comic book), backers pay less attention to the entrepreneur and the penalization for narcissism is reduced or even disappears” (p. 5). While this idea may be true, we would argue that readers have no reason to believe that an individual would be less successful than a team in subject matter expertise needed to complete a music or comics project, because solo music and comic campaigns are common. However, fulfillment expertise would still be needed for a solo music or comics creator, which suggests why *I* plus fulfillment language is very strongly associated with success. A display of fulfillment expertise in a context where readers more readily accept an individual’s subject matter expertise creates a strong indicator that a creator can bring a project to completion.

Our study validates several findings from Mitra and Gilbert (2014). The authors argue that terms reflecting authority, such as *project will be* and *we can afford*, are positively associated with success (p. 58). We agree that words of this type are positively associated with success. We would argue specifically that *project will be* and *we can afford* demonstrate confidence language. Similarly, Mitra and Gilbert (2014) identified forward-looking phrases (“*next step is*, *in the upcoming*, *will be published*, *to announce*”) as particularly helpful (p. 59, italics original); our findings agree that looking forward using confident verbs like *hope* and *can’t wait to* is associated with success. Confidence matters because confidence demonstrates the ability to complete a project in the eyes of Kickstarter readers. Finally, our finding that invitational language is strongly associated with success connects with Mitra and Gilbert’s (2014) finding that terms concerning reciprocity are positively associated with success (e.g., *mention your*, *also receive two*, *pledged will*) (p. 57).

Grebelsky-Lichtman and Avnimelech (2018) and Mitra and Gilbert (2014) indicated that creators should avoid language of uncertainty: “phrases which exude negativism (*not been able*), or lack assurance (*later i*, *hope to get*) are predictors of not funded” (Mitra & Gilbert, 2014, p. 57, italics and capitalization original). Anglin et al. (2018) also suggest using confident language. Our findings regarding confidence language validate each of these findings with a large data set.

Finally, we extend the finding of Koch and Siering (2015) that details (which they operationalized as increasing word amounts) are valuable in Kickstarter campaigns. Instead of word amount, we found specific words that were useful for describing details. We found that explaining what specific things the reader will get from the campaign upon its success is a strongly positive move that demonstrates confidence and the creator’s awareness of fulfillment. This move may build trust in the reader that the creator has paid attention to details and can thus successfully complete the project.

Other prior findings about text in Kickstarter studies are yet to be validated, such as those of Mukherjee et al. (2017) regarding innovation language and Ishizaki (2016) about use of *you* and quotation marks. These could be researched in further studies. Expanding this work beyond crowdfunding, much less beyond Kickstarter, poses a distinct set of challenges. Kickstarter specifically and crowdfunding, in general, offer a somewhat unusual situation among writing studies in that the success or failure of the piece of writing is public. Yet each crowdfunding platform contains its own conventions (Dushnitsky & Fitza, 2018). Discovering emergent style guides for other online genres would require tools to be built that reflect the success and failure conditions of varied online genres. For social media posts from a specific organization, one might be able to create a threshold of views, likes, shares, and/or comments that approximates success.

Ultimately, readers of Kickstarter campaigns have expectations of what Kickstarter campaigns should say in their text that have become conventions in successful campaigns. We suggest that these conventions, as discovered via verb pseudo-phrases associated with successful campaigns, are derived from the reader’s goal of finding a campaign with a creator or creators whom the reader trusts to “bring the campaign to life” via delivering the physical and emotional rewards promised (Kickstarter, PBC, 2022a). These findings comprise elements of an emerging Kickstarter style guide (as displayed in Table 5), offering suggestions to the technical communicator who is involved in writing a Kickstarter campaign text. Understanding Kickstarter style expectations can help entrepreneurial technical communicators respond with acceptable style for an audience of readers who expect certain stylistic moves that signal the ability to complete a campaign successfully.

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APPENDIX A: TAG SET

The Readme of the Lingua::EN:Tagger includes a description of its tagset, which is the Penn Treebank tagset lightly modified to replace tags with numbers and those which would conflict with standard HTML tags. We reproduce the table below from Coburn (2019).

Tag	Word Type	Example
CC	Conjunction, coordinating	and, or
CD	Adjective, cardinal number	3, fifteen
DET	Determiner	this, each, some
EX	Pronoun, existential there	there
FW	Foreign words	
IN	Preposition / Conjunction	for, of, although, that
JJ	Adjective	happy, bad
JJR	Adjective, comparative	happier, worse
JJS	Adjective, superlative	happiest, worst
LS	Symbol, list item	A, A.
MD	Verb, modal	can, could, 'll
NN	Noun	aircraft, data
NNP	Noun, proper	London, Michael
NNPS	Noun, proper, plural	Australians, Methodists
NNS	Noun, plural	women, books
PDT	Determiner, prequalifier	quite, all, half
POS	Possessive	s, '
PRP	Determiner, possessive second	mine, yours
PRPS	Determiner, possessive	their, your
RB	Adverb	often, not, very, here
RBR	Adverb, comparative	faster
RBS	Adverb, superlative	fastest
RP	Adverb, particle	up, off, out
SYM	Symbol	*
TO	Preposition	to
UH	Interjection	oh, yes, mmm
VB	Verb, infinitive	take, live
VBD	Verb, past tense	took, lived
VBG	Verb, gerund	taking, living
VBN	Verb, past/passive participle	taken, lived
VBP	Verb, base present form	take, live
VBZ	Verb, present 3SG -s form	takes, lives
WDT	Determiner, question	which, whatever
WP	Pronoun, question	who, whoever

Elements of an Emergent Style Guide for Kickstarter

APPENDIX A: TAG SET (CONTINUED)

Tag	Word Type	Example
WPS	Determiner, possessive & question	whose
WRB	Adverb, question	when, how, however
PP	Punctuation, sentence ender	., !, ?
PPC	Punctuation, comma	,
PPD	Punctuation, dollar sign	$
PPL	Punctuation, quotation mark left	``
PPR	Punctuation, quotation mark right	’
PPS	Punctuation, colon, semicolon, elipsis	:, ..., -
LRB	Punctuation, left bracket	(, {, [
RRB	Punctuation, right bracket	), },]

It's Not Just What You Say, It's How You Say It: Mitigating the Impacts of Greenhouse Gas Emissions with Effective Content

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By Alisa Bonsignore

ABSTRACT

Purpose: The goal of this article is to provide a tutorial for measuring the sustainability impacts of our content. Sustainability considerations should be just as important as the accessibility and usability of content. Fortunately, following our known best practices for effective content creation and governance also results in a smaller carbon footprint. This not only benefits the planet but also positions content creators as valuable business assets.

Method: An extensive literature review led to the development of processes and guidelines that connect our existing best practices for content with a new paradigm for sustainable content.

Results: This tutorial will examine five content scenarios and the relative impacts of each: modifications to individual web pages, content governance (removal of redundant, outdated, and trivial content), email blasts, videos, and podcasts. Metrics will be provided for justifying content decisions to management, and recommendations will be given for both optimizing usability and sustainability.

Conclusion: Merging established best practices for content creation and curation with measurable energy-to-emissions data gives us powerful tools for justifying content choices and demonstrating measurable value to both the organization and the planet.

Keywords: Sustainability, Best Practices, Business Value, Digital Content

Practitioner's Takeaway

Digital content—the bits and bytes that form our websites, apps, videos, and podcasts—is nothing more than energy. Energy has a carbon cost. Therefore, there must be a direct and measurable correlation between content and greenhouse gas emissions. By following all-inclusive guidelines and best practices for sustainable content, practitioners will be able to:

- Identify a direct correlation to the organization's sustainability initiatives
- Demonstrate that existing content best practices and sustainable content go hand-in-hand
- Calculate the economic and environmental benefits of content improvements

Mitigating the Impacts of GHG Emissions

According to the International Panel on Climate Change (IPCC), human-induced warming of the climate system is widespread (Hegerl et al., 2007). The impacts of climate change will be far-reaching and dramatic, with unevenly distributed effects that disproportionately impact women (United Nations Women Watch, 2009; van Daalen et al., 2020), BIPOC communities (EPA Press Office, 2021), and those living in poverty (The Organization for Economic Cooperation and Development, 2003; Yabe & Ukkusuri, 2020). "Unabated climate change will have dramatic effects on inequality, poverty, and economic opportunity. At the same time, poverty and inequality contribute to climate change" (Colmer, 2021).

Climate is inextricably intertwined with equity, education, health, and justice. This is why the United Nations released the 17 Sustainable Development Goals (SDGs) in 2015. They provide "a shared blueprint for peace and prosperity for people and the planet, now and into the future." (United Nations, 2022). The SDGs are an acknowledgement that none of the challenges facing humanity can be studied or solved in isolation; we must take an interdisciplinary approach that recognizes the connections between poverty, education, inequality, and climate.

We are on a path for planetary warming of 2.0°C and beyond. The 2022 IPCC Summary for Policymakers notes that "near-term actions that limit global warming to close to 1.5°C would substantially reduce projected losses and damages related to climate change in human systems and ecosystems" (IPCC, 2022). With that in mind, we all have an obligation to mitigate our climate impacts where we can.

THIS ISN'T PERSONAL

We have been told that we must make changes to our personal lives to influence the course of climate change. While there are certainly many options for change on a personal level—household solar arrays, electric vehicles, vegan lifestyles, and abandoning air travel, to name a few—no individual lifestyles changes have as much impact as those we make at work.

According to a 2017 report published by the Carbon Disclosure Project (CDP), the not-for-profit organization that runs the global disclosure system, 100 companies are responsible for more than half of all greenhouse gas emissions since the start of the industrial revolution 250 years ago. These organizations are responsible for 71% of all emissions since 1998 (CDP, 2017).

If the majority of emissions are driven by corporations, then how can we leverage our professional impact? How could we, as content professionals, make a difference? Certainly, there are opportunities for climate reporting, or emphasizing sustainability attributes of our products and services, but what about the content itself?

I discovered that we can make direct connections between the content we create and the greenhouse gas emissions associated with that content.

ESTABLISHING A BASELINE: UNDERSTANDING CARBON FOOTPRINTS

Where does energy come from, and how does that create emissions?

Currently, 20% of energy in the U.S. comes from renewable sources, such as solar, wind, geothermal, or hydroelectric. The majority comes come from the burning of fossil fuels, such as petroleum, natural gas, or coal (Frequently Asked Questions (FAQs) - U.S. Energy Information Administration (EIA), n.d.). When fossil fuels are burned, they release carbon dioxide into the atmosphere. Carbon dioxide is a greenhouse gas that traps heat in the atmosphere, causing the planet to warm. While some carbon dioxide exists naturally in the atmosphere, the levels of atmospheric carbon have been increasing steadily since the start of the industrial revolution (U.S. Department of Commerce, n.d.).

There is a direct correlation between energy and data. According to a report published by the nonprofit research organization the American Council for an Energy-Efficient Economy (ACEEE), each gigabyte (GB) of data requires 5.12 kWh of energy (Costenaro & Duer, 2012). This is a very abstract number for most people, but this means that according to the Greenhouse Gas Equivalencies calculator from the U.S. Environmental Protection Agency (EPA), data is responsible for approximately five pounds of greenhouse

gas emissions for every gigabyte of data (Greenhouse Gas Equivalencies Calculator | US EPA, 2022).

Note that this calculator is regularly updated to reflect the current emissions per kWh in the United States. While the world is moving away from reliance on fossil fuels, progress is slow. According to the latest data from the U.S. Energy Information Administration, in 2021 the United States generated approximately 20% of its energy from renewable sources (U.S. Energy Information Administration, 2021). Even if we increase our renewable energy production by 10% annually, we'll still be relying on fossil fuels for about half of our energy in 2030.

For decades we have heard about our carbon footprint—the impact that our lives and choices have on the Earth's climate. Many of us have considered or made choices that have influenced our personal footprints but have rarely considered the impact that we could have at the organizational level. The next section will quantify the scope of some of those personal impacts, so we have context for what we'll talk about later.

Why do we know about climate footprints?

While it was a term developed by scientists, it became famous after a BP marketing campaign that began about 20 years ago and is still used today. BP—the corporation formerly known as British Petroleum—wanted to shift the emphasis to personal responsibility to draw attention away from the fact that BP is the fifth largest polluter in history (CDP, 2017). It was a remarkably effective campaign and shifted the conversation to placing the weight entirely on the shoulders of the individual.

CONTEXT: IMPACTS OF PERSONAL CHOICES

Solar

Adding household solar is one of the most significant things that an individual can do to reduce their carbon footprint. At my home in sunny Phoenix, my solar array has generated more than 28,093 kWh of energy in its first year, which according to the EPA calculator is a total of 21.9 tons of greenhouse gas emissions avoided. However, this is an option that is not open to the 36% of Americans who rent their homes (Desilver, 2021), or the 53% of owner-occupied households governed by homeowners association (HOA) restrictions (Homeowner Association USA, 2022).

Electric Vehicles

Replacing a car with an internal combustion engine with an electric vehicle (EV) can eliminate 5.1 tons of emissions per year (US EPA, 2016). But that is an option that assumes a single-family home with a garage; viability of EVs can be limited if you have nowhere to charge overnight.

Dietary Changes

We can go vegan. This turns out to be a smaller impact than you would think (Rosi, 2017). Most early studies assumed that vegans would eat plant-based, locally grown diets. In practice, they eat meat substitutes, nut milks, tofu, and even Oreos. All those foods are highly processed and contribute to your carbon footprint.

Travel

What if we never fly again? I hate to think about it, but it has an impact. In the pre-pandemic times, I would travel to Europe every year to visit my clients. Eliminating that annual trip adds up to a greater greenhouse gas savings than diet does (International Civil Aviation Organization, 2016).

Putting all of this together, solar, EVs, dietary habits, and restricted travel can help you avoid add up to 23 tons of annual greenhouse gas emissions—equivalent to removing 4.5 cars from the road each year.

THE CONNECTION BETWEEN DATA AND CARBON EMISSIONS

With the knowledge that the majority of carbon emissions come from corporations, not individuals (CDP, 2017), and that the effects of climate change are unevenly distributed, affecting the most vulnerable populations (Colmer, 2021), then we have an obligation to act accordingly.

Many of us were raised with the promise of digital. Paperless offices, websites, apps, e-books, and emails were heralded as the clean, efficient method of communication. Digital is free. It is harmless.

Not exactly. "Digital is physical," says Gerry McGovern in his book, *World Wide Waste* (McGovern, 2020). Digital communications have a huge climate

impact. Every bit and byte that we create is nothing more than energy. Energy is quantifiable. And for the foreseeable future, the use of energy emits greenhouse gases. It is therefore our ethical obligation to consider the environmental impact of the content that we create.

In this weird, transformative pandemic era that we are living through, organizations are under increased pressure to measure and report sustainability criteria. It's not due to altruism; institutional investors see sustainability as a measure of long-term investment risk. These risks can include:

- Limited natural resource availability
- Blackouts or brownouts due to overwhelmed public electrical grids
- A workforce that is poorly educated, unhealthy, or otherwise unable to work
- The direct measurement of carbon emissions

Management is now looking at sustainability not as a niche market, but as a key element of long-term success metrics. The U.S. Securities and Exchange Commission announced plans to update reporting rules to include more environmental, social, and governance (ESG) criteria in corporate reporting (U.S. Securities and Exchange Commission, 2022). Content plays a role in the success of your organization, whether by telling the ESG stories or contributing to the metrics behind the organization's climate footprint.

Looking at the Numbers

Studies estimate that we use 5.12 kWh of energy per GB of data (Costenaro & Duer, 2012). This means that for every GB of data, we're emitting 5 pounds of greenhouse gases (US EPA, 2022).

Inbound marketing company Hubspot reports that the average home page weight was close to 2.0 MB in 2020 (Stec, 2020). Some web pages are more than 7 MB per page (Helvetica, 2020). In the process of research for this tutorial, I took a random sampling of banks, corporations, retailers, and nonprofits—literally the first eight that came to mind—and ran them through the Pingdom calculator that measures page weight, load times, and performance (Solarwinds Pingdom, 2021). All of the home page weights were significantly greater than the 2.0 MB average reported by Hubspot.

Why so large? Because the current standard for modern web pages involves large hero images, videos, or carousels that largely fill the screen. As Greenwood and

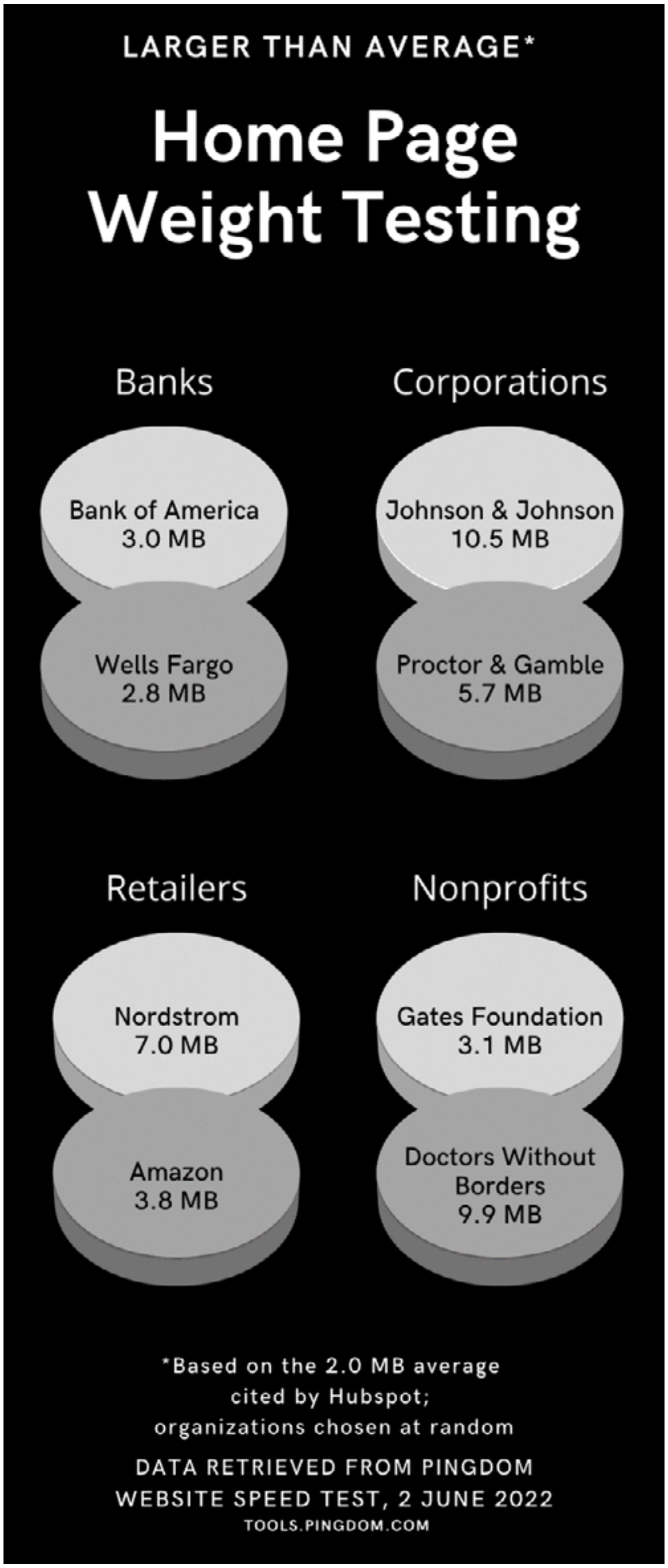

Figure 1. Most home pages for large organizations exceed the overall average for all web pages.

As Greenwood (2021) notes in his book, *Sustainable Web Design*, roughly half of the weight of a modern web page is imagery. Worse, that imagery tends to be stock art that does not add value to the user's experience.

Yet this practice goes against the concept of plain language, as advocated by Balmford. He asserts that "plain language" is not wholly accurate. It's not simply about the choice of words and sentences, but rather the whole document, including language, structure, and design (Balmford, 1998, 1999).

While some argue that plain language "dumbs down" the message, it improves readability. In her book, *Content Design*, Richards (2017) asserts that, "It's not dumbing down. It is opening up."

There are lots of definitions for plain language, but there are common threads:

- It represents the needs of the reader
- It supports comprehension
- It typically uses fewer words
- It improves accessibility
- It makes translation easier

"The benefits of plain language are inarguable…. A commitment to clarity achieves democracy, equity, authenticity, and transparency. It saves time and money, and generates goodwill and compliance" (Petelin, 2010). And, as it happens, plain language also reduces emissions.

CONNECTING BEST PRACTICES TO SUSTAINABLE CONTENT

As communicators, we know that less can be more. Too much information adversely affects readability, usability, and comprehension. This flood of information also increases data, energy use, and emissions. We'll look at six examples of how we can do more with less.

The Benefit of Reducing Page Weight

When we look at the weight of a specific web page—such as the Doctors Without Borders web page from Figure 1—we are not looking at the size of the page in isolation. The data contained within their 9.9 MB web page had 225,000 hits in June 2022, according to data provided by SimilarWeb.com. To measure the impact of this web page, we need to multiply the 9.9 MB by the number of times that data was transferred. As we have already established, data is energy, and energy creates emissions. Reducing the page weight would reduce the organization's carbon footprint.

At Company A, they had an image-intensive home page. At 4.9 MB it was heavier than the average weight reported by Hubspot, within the upper half of the examples shown in Figure 1. The page was loaded with stock art of healthcare providers in scrubs and masks; none of these images showed products or services in action, leaving the reader with no visual clues beyond the knowledge that the product was something medically focused.

Eliminating unnecessary stock images and replacing others with more informative product-oriented photos cut the page weight by half. The end result was a page that still looked like a typical website, but was more informative, downloaded faster, and reduced the carbon emissions by half.

As seen in Figure 2, the net result was a savings of nearly 17 tons of avoided emissions, or the equivalent of removing more than three passenger cars from the road for a year.

The Impact of Adding New Pages

Because content professionals are most often measured by what we create, rather than what we remove or streamline, we need to examine the impact of new pages.

A new product has been released, and management wants to add a new landing page complete with user guides, video tutorials, and other information that helps the customer to get started. We're going to be charitable and assume that the page is 4 MB, about one-third larger than the Hubspot average. (Note that with the addition of video or photo walk-throughs, it could be significantly heavier.)

The goal is that all new customers will go to this page for information. Management is hoping for 500,000 hits in the next 12 months.

Downloading 4 MB 500,000 times is more than 10,000 kWh of energy, equal to 5 tons of emissions or adding one passenger car to the road for a year.

The Cost of Email Campaigns and Newsletters

The average email is about 75 KB (Tschabitscher, 2021). This is the average for all emails, from text-only interactions to corporate newsletters. It also only counts the code of the email itself, not the linked images that download after the fact. However, the size, weight, and impact of images varies considerably from one newsletter to the next.

Mitigating the Impacts of GHG Emissions

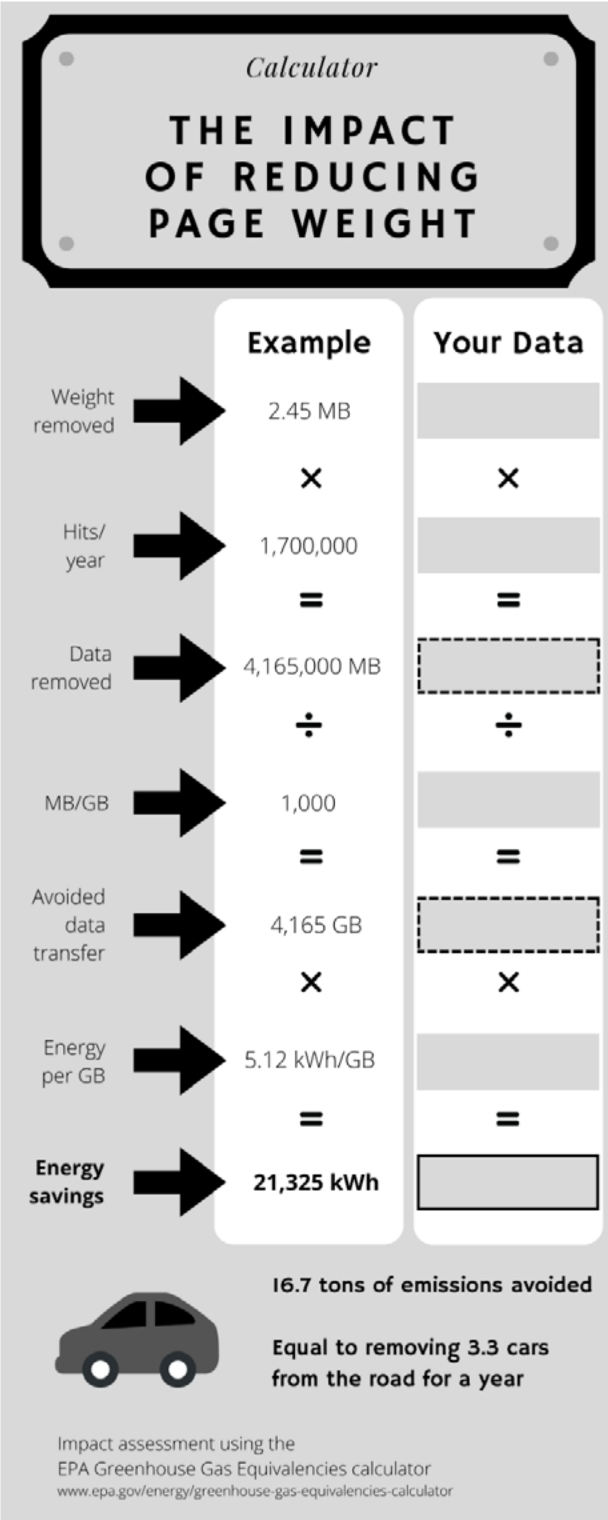

Figure 2. Images account for approximately half of total page weight. Thoughtful content design can reduce overall page weight, minimize download time, and have a positive impact on emissions.

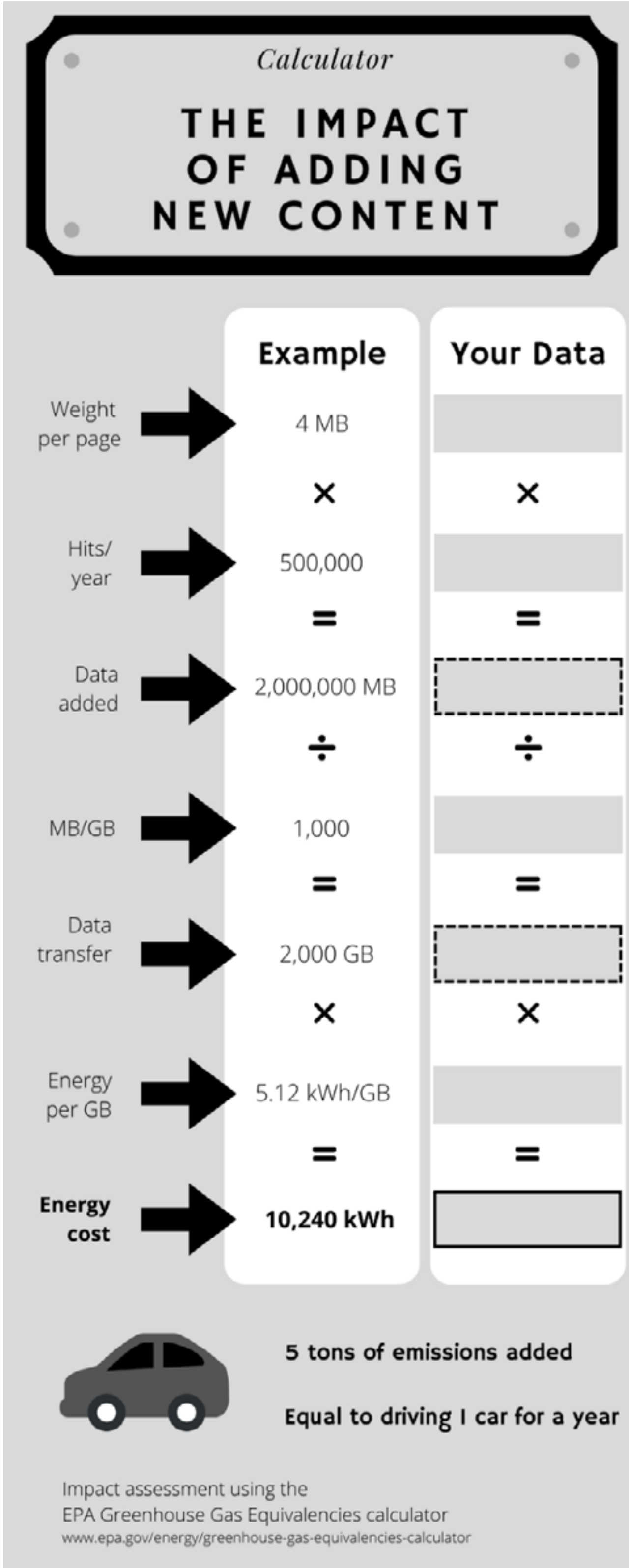

Figure 3. When tasked with adding new web pages, consider the emissions impact.

One streaming video service has more than 200 million subscribers who get weekly newsletters by default. We will use the 75 KB average for calculations, even though the additional imagery would add to the total weight.

With 200 million emails sent at a weight of 75 KB each, the total amount of data transferred is 15,000 GB. At an energy cost of 5.12 kWh/GB, that works out to the emissions equivalent of driving a little more than 7 cars for a year. But these emails come weekly, so the annual impact over 52 weeks is closer to 360 cars driven for a year.

Governance: Removing the Unnecessary

Governance is one of the most overlooked best practices in content. Beyond the benefits for content strategy, it also can have a tremendous impact on an organization's carbon footprint.

One of the favorite stories in content strategy is the tale of how the U.K. Government Digital Service took 75,000 pages down to 3,000 about a decade ago (Richards, 2020). Web pages were significantly lighter then—research shows that the median page weight was about 650 KB in 2012 compared with about 2 MB per page that's the reported median for today (Helvetica, 2020). However, as we've seen in Figure 1, that "average" data is median for all websites, and there's reason to believe that government or corporate pages were heavier than average then as they are today.

We can very conservatively assume 1,000 hits per page per year, on average, or 83 hits per page per month. While some pages may have languished untouched, others were so poorly structured or redundant that a visitor might need to view two, three, or five pages to find what they're looking for.

Removing 72,000 pages was the equivalent of removing 37 cars from the road each year for the past decade. The decision to consolidate and remove not only had usability benefits, but environmental benefits as well.

The Relative Impacts of Video vs. Audio: File Size Matters

There are times when video is an indispensable tool for walking customers through setup, use, or maintenance of a product or service. There are also times where video used for the sake of video, as we saw in the "pivot to video" trend that was driven by Facebook half a decade

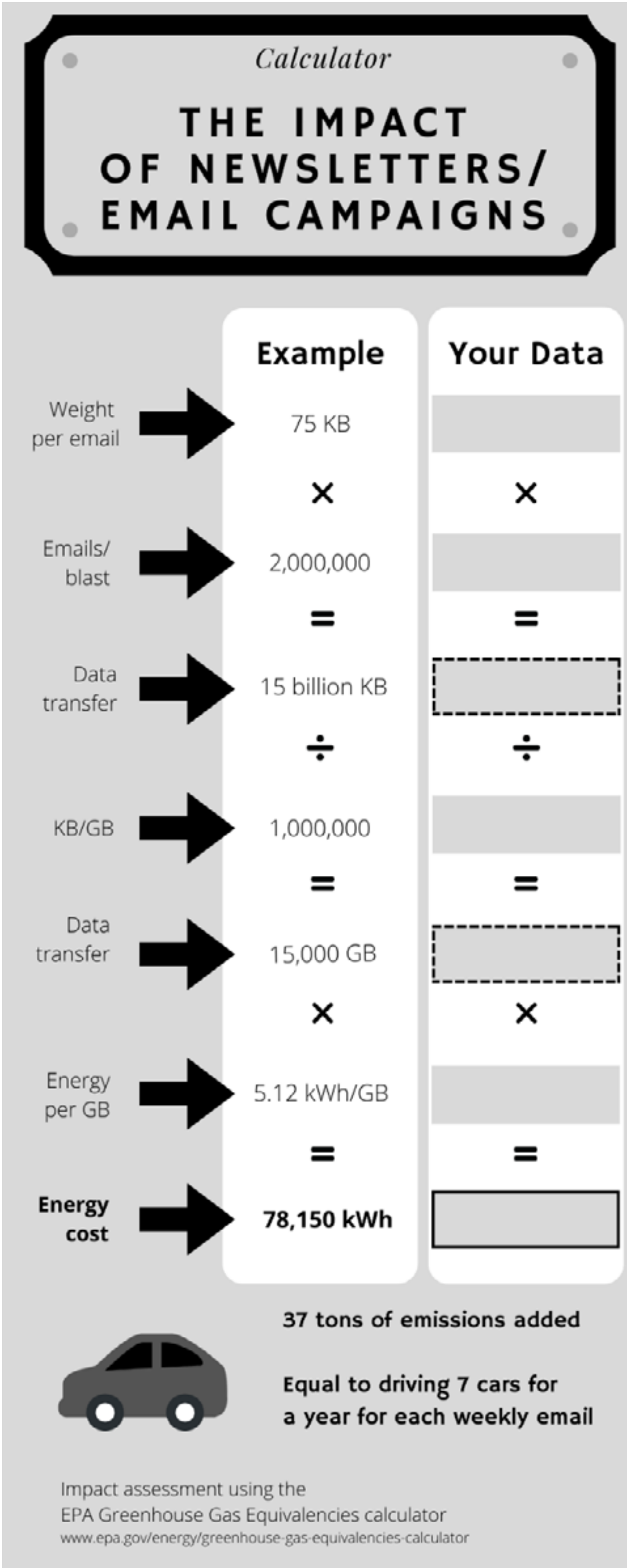

Figure 4. Because of the scope and frequency of many email campaigns, the carbon emissions add up quickly.

Mitigating the Impacts of GHG Emissions

ago (Owen, 2021). In the latter, it is an unnecessary, heavy-weight, flashy example of something that could have been explained just as clearly in text or imagery.

The ways in which video can be used are diverse, which makes comparative weighting difficult. Instead, let us compare audio-only podcasting vs. video podcasting or recorded presentations: informational tools, but not directly tied to product usability.

A half-hour video recording, complete with slides and talking head recorded at YouTube quality of 24 frames per second will end up being about 1.73 GB (Forret, 2022).

Podcast hosting company Blubrry estimates that the same information presented as a half-hour long, mono-channel, talk-only audio podcast-style recording averages about 23 MB (Blubrry, 2021).

When deciding between audio and video, it's important to decide whether video is worth 75 times the energy and correlated emissions. Always consider video projects on a case-by-case basis.

Mitigating the Impact of Video Meetings

In the pandemic era, we all spend a significant portion of our day on video conferences. But that, of course, uses bandwidth, which is energy, which we now know has a carbon cost.

When everyone joins the meeting with video on, the meeting requires roughly 800-900 MB of bandwidth per person (Holslin, 2021). In the past month, I kept track of my meetings. On average, every Zoom meeting had five participants. When everyone

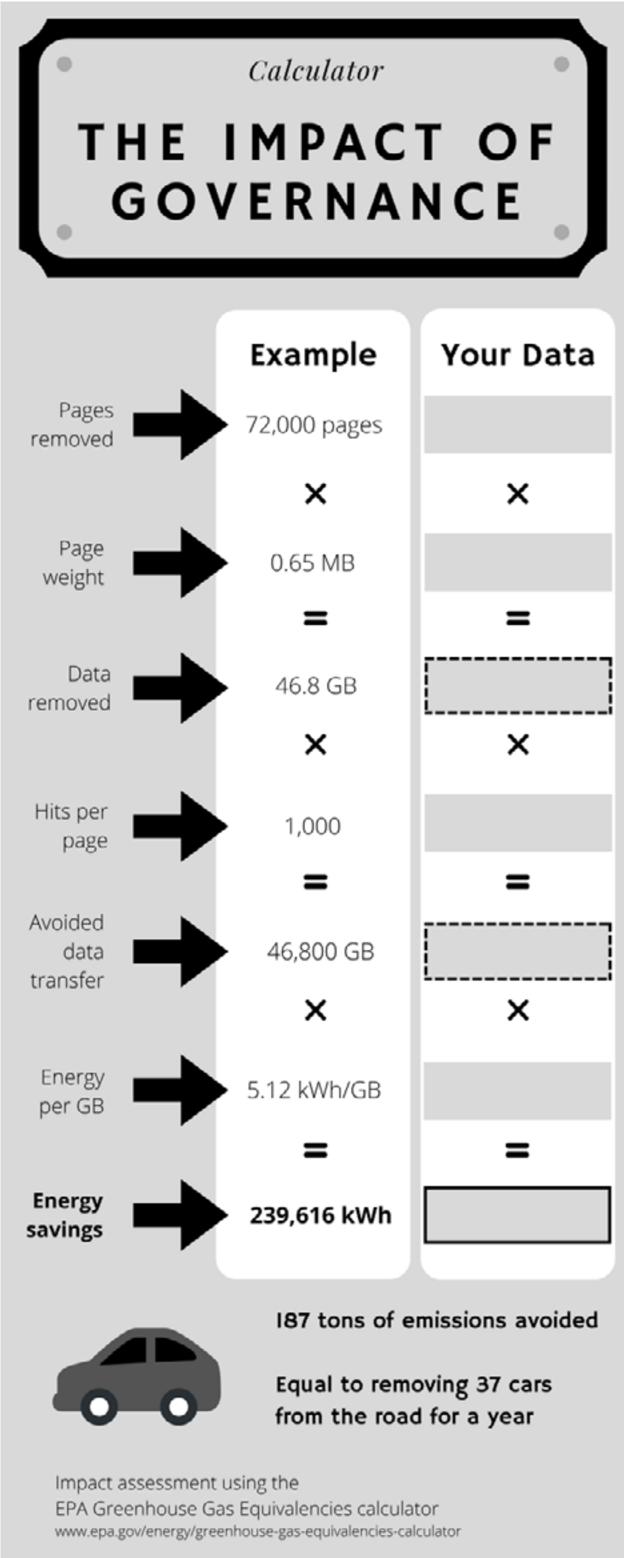

Figure 5. There is environmental value to removing redundant, outdated, and trivial content, as they did with UK.gov a decade ago.

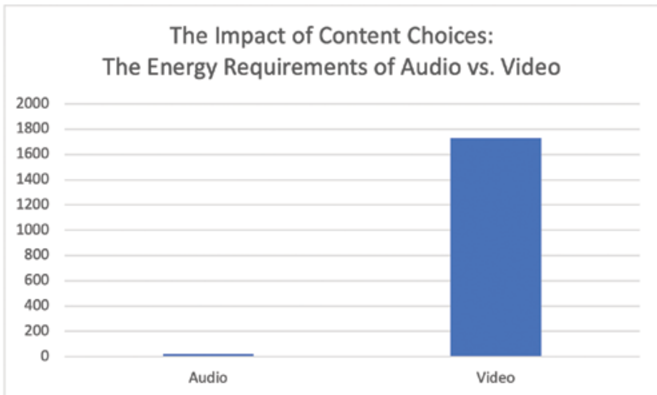

Figure 6. The popularity of the "pivot to video" mentality has environmental consequences. Video is 75 times as energy intensive as audio, which uses more energy than text.

has their video on, that works out to an average of 4 GB of data per call.

That same call—the usual screen sharing, the speaker visible in thumbnail, but other participants in video-off mode—works out to be about 190 MB total on a five-participant call. Leaving everyone's video on for the duration is 20x as energy and emissions intensive as video-off.

Many employers believe that video-on is crucial for building relationships while working remotely. A good compromise can be to have video on for the five minutes of meet-and-greet at the start of the meeting, but video off during screen sharing.

Other Considerations

For this tutorial, we have focused exclusively on the energy required for energy transfer. We have not addressed the ancillary energy costs or environmental impacts associated with the creation or use of the digital information itself.

Without question, there is a significant environmental footprint associated with the manufacture, transport, and operation of any electronic device, including:

- Impacts from mining rare earth minerals
- Waste and pollution associated with the manufacture of semiconductors and other electronic components
- Emissions from the transport of devices
- Energy required for use of the device, even in standby mode
- The waste associated with the disposal of any electronic device

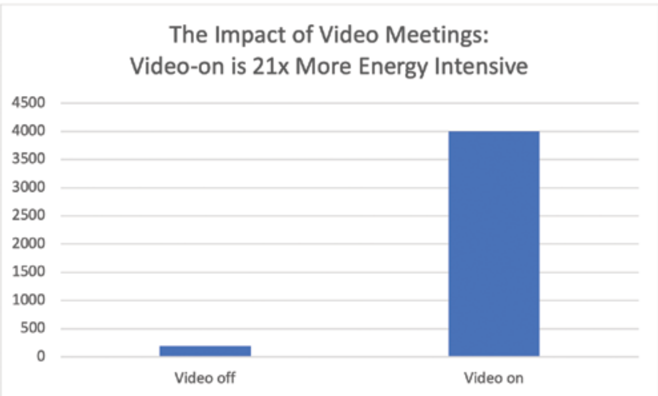

Figure 7. You're not imagining it: video-on meetings require a lot of energy.

The energy draw of any device varies based on several factors, including the type of device; the age and efficiency of the device; the ancillary devices used with the device, such as computer monitors, Bluetooth keyboards, or wireless headsets; the age and efficiency of the modem; and whether the device is on a wired or wireless connection. We also know from experience that data-intensive activities drain our device batteries more quickly. All this energy has an environmental impact.

We can reduce our footprint with the following actions:

- Replacing our devices less frequently to reduce consumption of resources
- Closing open tabs, which continue to stream data even when idle (Costenaro & Duer, 2012)
- Limiting unnecessary data transfer by limiting the number of people copied on an email with a large attachment (Costenaro & Duer, 2012)
- Sending fewer "unnecessary" emails; a 2019 study showed that 64 million "thank you" or "have a good weekend" emails were sent daily in the U.K., accounting for nearly 26,000 tons of emissions per year (Shrestha, 2019)
- Adjusting your settings so your computer "sleeps" when not in use
- Turning your computer off (not simply asleep, but shut down) at night
- Storing data locally vs. in the cloud; cloud storage is roughly a million times more energy intensive than local storage (Adamson, 2017)
- Reducing the use of Wi-Fi when a wired connection is available

Calculators do exist to measure cradle-to-grave carbon footprints of our electronic devices (Quintana-Pedraza et al., 2019). If you would like to learn more about measuring these impacts, the Quintana-Pedraza et al. article is a good place to start.

CONCLUSION

Our work has a direct and quantifiable impact, not just on our users, but also on the planet. Communicators who know how to measure the impact of content are positioned to advance their careers, emerging as strategic leaders in the organization.

By measuring the impact of both what you create and what you remove, you are no longer solely looking at page weight from a usability or accessibility

perspective—which it absolutely is—but making tangible connections between these content best practices and sustainability.

- Plain language? Fewer words and clearer content not only improve comprehension and reduce translation costs, but it also means smaller file sizes and fewer carbon emissions.
- Reduced page weights? Improved download times increase usability while reducing emissions.
- Fewer emails? Trust me, customers will be happier, and you will also be reducing your carbon footprint.
- Governance? Get rid of the excess and focus on what matters for usability, accuracy, and sustainability.
- And video vs. audio? You finally have a sustainability justification for video-off meetings in a way that positions you as a thought leader.

These are the things that are already within our control. We do not need special permission. We do not need a sustainability-friendly boss, or a company that wants to be a sustainability leader. This is just putting numbers behind what we already do. Following best practices not only benefits our customers and organizations, but also the world that we live in.

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APPENDIX A: SUGGESTED READINGS

While all the listed efforts reasonably fall under the purview of our own departments and shouldn't require special permission, communicators may find themselves having difficult conversations with colleagues and managers who may be unsupportive of sustainability initiatives. There are many resources that address how to broach these challenging topics and overcome existing biases. A selection of recommended reading is below:

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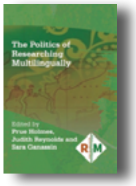
Review of Two Books on Writing and Researching Multilingually

By Barbara Jungwirth

INTRODUCTION

Both books in this review target university-level research. *The Politics of Researching Multilingually* critically questions language use in research—who determines which language(s) to use, what does that mean for power relationships between the people communicating in that language, how should we question our use of linguistic resources. *Writing the Research Paper: Multicultural Perspectives for Writing in English as a Second Language* is a textbook about producing a research paper when English is not one's first language. Its detailed instructions are helpful to students who need to write such papers. However, *The Politics of Researching Multilingually* questions whether such papers should be written in English in the first place.

The Politics Of Researching Multilingually



This volume in the *Researching Multilingually* series collects self-reflections and examples from (mostly) doctoral candidates who are researching language-adjacent topics in a variety of locations—from Kyrgyzstan to Algeria to Canada—among a variety of people—from preschoolers in Mauritius to multilingual teachers in Colombia. Beyond "named" languages, such as English or French, the authors also address linguistic varieties that are not necessarily recognized, such as Gagauzian in a province of Moldova, that mix named languages, such as linguistic practices on San Andres Island in Colombia, or that are non-verbal, such as British Sign Language. The social value placed on specific languages or linguistic practices in these locations is explored, as are the power relations between researchers—who may or may not speak one or more of the local languages—and the people they are researching. Section headers such as "hegemonic structures," "power relations," "decolonizing methodologies," and "decolonizing languages" hint at the theory behind this collection of study reports.

This translator found examinations of how working with a local interpreter influences not only the relationship between researcher and researched, but may shape the research itself, most informative. Critically thinking about which language—or language variety—to use, and when and how to do so, is also helpful in daily life, even for people who speak only one named language. For example, do you speak a local dialect in informal situations and expect someone from elsewhere in the US to understand you? Does that linguistic choice mark you as an "insider" and the person who has difficulty understanding you as an "outsider"?

That's the message of this book: language—and language choice—matters. How we talk to someone—and which language we choose in a multilingual setting—sets up our relationship with others. While we may often switch languages unconsciously, it is helpful to reflect on some of these situations after the fact. Who got to choose the language of discourse and why? What did that mean for the other person(s) in the communication? Even people who are not linguistic researchers may benefit from such introspection, which could ultimately lead to a more equitable use of language.

Beyond critical reflection, the volume also provides interesting information on locales and linguistic practices of which many people are not aware. In Mauritius, for example, people—even young children—routinely switch between (at least) three different languages: English, French and Mauritian Creole, and more than 21 languages are spoken (p. 133) in this nation of 1.2 million people (https://en.wikipedia.org/wiki/Mauritius).

The volume's editors suggest that researchers ask themselves whether they acknowledge cultural and linguistic diversity in their research, recognize the multilingual contexts in which they work, and understand the interpreting and translation processes that they use in that work. What do the answers to these questions mean for the researcher's own integrity?

By Barbara Jungwirth

Writing The Research Paper: Multicultural Perspectives For Writing In English As A Second Language

This volume in the *Teaching and Learning English Language and Literacy Skills* series walks university students through the process of preparing a Western-style research paper. It emphasizes the need for critical thinking and devotes significant space to explaining quotation and reference practices to avoid charges of plagiarism. The rest of the book is devoted to the process in sequence, starting with picking a topic and culminating in the final draft of the introduction—which is produced last. The authors teach at the American University in the United Arab Emirates. This volume is written with their students in mind—attending an advanced university-level writing course in their second (or third) language, English. While they are expected to produce university-level writing, little original research is assumed, and the final paper is expected to be 10–12 pages long.

Befitting a textbook, each chapter features an introductory primer and summary of main points. Beyond that format, certain concepts, such as critical thinking questions and honest answers of these, are repeated frequently throughout the book. Suggestions are sometimes also rather formulaic—including recommending the use of "frozen expressions", such as "In this paper, I argue that …." (pp. 125–126).

While the authors write that the purpose of a research paper is to persuade its audience, they also argue "Confrontational arguments serve no useful purpose—in life or in writing" (p. 92). Such advice on life seems a bit outside the purview of a writing course textbook. Other advice, such as "neither all positions nor all evidence is equal" (p. 24) would be helpful for journalists and others outside an academic writing course.

The book's somewhat formulaic approach to the topic may be helpful to students who are less familiar with formal English and with Western expectations of research papers. However, as the first book in this review argues, these are not the only parameters within which research could/should be undertaken or written up.

REFERENCES

Prue Holmes, Judith Reynolds, and Sara Ganassin, eds. (2022). *The Politics of Researching Multilingually*. Multilingual Matters [ISBN 978-1-80041-013-8. 392 pages. US$59.95 (softcover).]

Philip M. McCarthy and Khawlah Ahmed. (2022). *Writing the Research Paper: Multicultural Perspectives for Writing in English as a Second Language*. Bloomsbury Academic. [ISBN 978-1-350-16416-1. 224 pages. US$24.25 (softcover).]

ABOUT THE AUTHOR

Barbara Jungwirth writes about medical topics (www.bjungwirth.com) and translates medical and technical documents from German into English (www.reliable-translations.com). She has written for print and online media since her high school days and majored in media studies. You can find her on Twitter at @bjungwirthNY.

Table 1. Books on Researching and Writing Multilingually

	Politics of Researching Multilingually	Writing the Research Paper
Audience	Graduate student researchers	Writing students at university
Major Strengths	• Reflects on topics few people think about • Provides interesting information on places and languages • Supplies food for thought for people who design/implement research	• Accessible, sometimes even humorous, language • Addresses each step in the thesis writing process • Explains Western expectations of such papers to people from other cultures
Major Weaknesses	• Heterogeneous annotation practices for samples • At times rather academic writing • Use of both US and UK spelling makes a point, but can be distracting	• Rather formulaic approach to best practices • Somewhat repetitive • Sometimes veers too far off writing advice
Comments	While the point of the book – reflect on your language use – applies to everyone, the texts themselves are better suited to academics rather than laypersons.	With its somewhat formulaic approach to writing a research paper, the book may be better suited to readers who want highly structured instructions on the topic.
Rating (5-star scale)	****	***
Cost (USD)	$59.95	$24.25

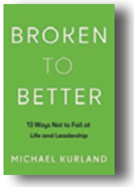
Jackie Damrau, Editor

Books Reviewed in This Issue

The reviews provided here are those that are self-selected by the reviewers from a provided list of available titles over a specific date range. Want to become a book reviewer? Contact Dr. Jackie Damrau at jdamrau3@gmail.com for more information.

Broken to Better: 13 Ways Not to Fail at Life and Leadership

Michael Kurland. 2022. Houndstooth Press. [ISBN 978-1-5445-2970-7. 162 pages. US$15.99 (softcover).]



The “Broken” in Michael Kurland’s book, *Broken to Better: 13 Ways Not to Fail at Life and Leadership*, title refers to his life before launching his company. Divorced and tired of working in sales positions that were not personally fulfilling, he wanted to launch a company that aligned with his values. The “Better” refers to his journey as an entrepreneur after reading *Conscious Capitalism* by John Mackey and Raj Sisodia that inspired him “…to be a CEO of a purpose-driven business” (p. 140). Kurland’s “Be Better” approach to leadership can be summarized as providing superior customer service, valuing employees and vendors, and improving the lives of those in the community. According to Kurland, creating and maintaining a company culture (“…a work environment that is welcoming, nurturing, and empowering”) is the key to achieving these goals (p. 11).

The book’s title is a bit misleading as Kurland is honest, but upbeat and positive about his experiences and challenges of co-founding and building a successful purpose-driven company. It is written in a conversational tone with 13 chapters that cover 13 principles that reflect Kurland’s “Be Better” approach. In each chapter, the author weaves his personal journey as a business leader with practical tips and advice based on his experience with the chapter’s topic. Although Kurland owns a facility management company, his advice is relevant to technical communicators who are business owners or exploring this path as both fields provide services and must distinguish themselves from other companies in their field. I found tips that I could adapt to my technical communication business.

While some advice may not be new, *Broken to Better* still contains useful information. Because the solo owner model is common in the technical communication field, Kurland’s advice in Chapters 4 and 5 on hiring and expanding a company is valuable for solo owners who are interested in business growth. I was also pleasantly surprised to see Kurland (a non-technical communication professional) cover the role of writing policies and procedures when scaling a business (pp. 121–123). His acknowledgment of the importance of written procedures is gratifying and demonstrates his understanding of what it takes for a company to maintain long-term success.

Each chapter concludes with a reference to a podcast applicable to the chapter’s principle from Kurland’s podcast series, where a business leader or subject matter expert provides their personal perspective on the topic. Each podcast also includes a transcript. After a quick sampling of the series, it seems that most of the podcasts focus on interpersonal topics. The podcasts are located on his website, MichaelKurland.co/bebetter-podcast.

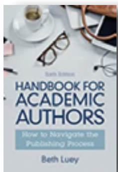
The author includes a helpful reference that summarizes the *Broken to Better* principles (pp. 154–155).

Ann Marie Queeney

Ann Marie Queeney is an STC senior member with more than 20 years’ technical communication experience primarily in the medical device industry. Her STC experience includes serving as a 2020-2022 Board member and CAC (Communities Affairs Committee) Chair, special interest group leader, and STC Education Committee member. Ann Marie is the owner of A.M. Queeney, LLC.

Handbook for Academic Authors: How to Navigate the Publishing Process

Beth Luey. 2022. 6th ed. Cambridge University Press. [ISBN 978-1-00-907335-6. 284 pages, including index. US$21.99 (softcover).]



Academics just beginning their careers frequently seek advice on how to get their books and journal articles published. One of the most reliable guides has long been Beth Luey’s *Handbook for Academic Authors*, first published in 1987. The 2022 edition continues to offer fine advice throughout.

The points that Luey makes aren’t particularly novel. Many of us with years of experience have been offering many of the same pieces of advice when teaching courses in professional publication or mentoring new writers. But the pieces are organized very effectively in Luey’s hands.

She goes in-depth on finding and working with publishers of journal articles, scholarly books, anthologies, textbooks, revised dissertations, and books for a general audience. Look carefully also at her informed take on book prices (perhaps her best chapter) and her thoughts on digital publishing and social media.

I personally find Luey's approach and suggestions insightful and even entertaining. In most chapters she explains how various actions you might take will sit with promotion and tenure committees. Ethics are a major concern for her, as evidenced by the attention paid to permissions in several chapters and her skewering of vanity presses. And she is ever mindful of the need for quality: "There is a vast amount of free second-rate material on the Web that competes with authoritative, high-quality resources" (p. 259).

Yes, Luey sounds authoritative, but she also shows a human touch: in discussing the certainty of your manuscript being rejected at some point, she shares that she got several rejections when she first submitted this handbook's manuscript to publishers.

As a newly coined academic, you'd ignore Luey's advice at your own peril. Pick up at least one edition of the handbook and read it thoroughly. You might want to go beyond the chapter on dissertations in this book and check out her fine collection *Revising Your Dissertation: Advice from Leading Editors* (University of California Press, updated ed., 2008), which likewise remains valuable for younger scholars.

Avon J. Murphy
Avon J. Murphy is an STC Fellow who serves the Society as a researcher and as editor of the annual Summit Proceedings. A onetime college professor and government writer, he is a technical editing contractor and the principal in Murphy Editing and Writing Services, based in western Washington.

Leading Content Design

Rachel McConnell. 2022. A Book Apart. [ISBN 978-1-952616-17-4. 140 pages, including index. US$29.00 (softcover).]

Hidden behind the title *Leading Content Design* is one of the most illuminating books available today on content operations ("content ops"). Ultimately, this book is not so much about content design as it is about the surrounding tasks prerequisite to doing effective content design. The author divides these content ops tasks into five categories: people, capability, process, tools and systems, and organizational alignment. This clear breakdown made for the most understandable explanation of content ops that I have yet to encounter.

Rachel McConnell recognizes the tendency for content design teams to be spread thin and pulled in too many directions, resulting in shallow work that doesn't get to make use of the teams' design skills. She is careful to point out that without a dedicated ops person, it's easy for content ops work to fall by the wayside, even for content teams that appear to be organized into mature, established hierarchies. Her approach to doing this work effectively is to view "the content team as a product itself" and to go about content ops as she "would approach any other design project" (p. 16).

Artifacts and ideas from McConnell's user-centered design and research activities fill the pages of *Leading Content Design*, especially in the fourth chapter, "Process, Tools, and Workflows." One of my favorites is the workflow map, which uses sticky notes to illustrate, step-by-step, each task that goes into creating a particular type of content, who is responsible, and how long it will take. Once this has been visualized, it's easier to spot inefficiencies and figure out ways to tangibly improve the process. McConnell recommends that changes to processes be introduced as prototypes, to be evaluated collaboratively with team members at a set review date.

Leading Content Design dedicates its final chapter, "Beyond the Team," to sharing ideas for how content designers can broaden their influence across their organizations and create lasting change. One of the most interesting (though perhaps nerve-wracking) suggestions is to hold content design critique sessions (or crits, as McConnell calls them) in open areas where anyone at the organization can observe and eavesdrop" (p. 130).

It sure feels like content design leaders need to be resilient and brave people, because they often must create new processes from scratch and fight for stakeholder buy-in at every step of the way. *Leading Content Design* is a no-nonsense guidebook packed with the experience and wisdom of an author who has boldly navigated these waters. I recommend it to senior-level content designers and team leads who truly want to elevate the way content is treated at their organizations.

Josh Anderson
Josh Anderson, CPTC, is an Associate Information Architect at Precision Content. Josh was an English teacher in Japan and an SEO Specialist in the Chicagoland area before earning a Master of Information at the University of Toronto.

Microsoft Excel Step by Step (Office 2021 and Microsoft 365)

Joan Lambert and Curtis Frye. 2022. Microsoft Press. [ISBN: 978-0-13-756427-9. 458 pages, including index. US$39.99 (softcover).]

Microsoft Excel Step by Step (Office 2021 and Microsoft 365) is a well-structured, 16-chapter reference book to learn Microsoft Excel for Office 2021 and Microsoft 365 software. Chapters cover the basics, setting up a workbook/worksheet, working with data and calculations on data, visualizing/managing/analyzing data, combining data from multiple sources, creating charts/graphics and PivotTables/PivotCharts, printing worksheets/charts, and automating tasks/input. The Step-by-Step approach helps you follow the steps easily and use the online practice files from each chapter. You can open the files to practice or download and save them for repeat practice.

I enjoyed learning Chapter 13, which shows the procedures for integrating Excel, Word, and PowerPoint contents within Microsoft 365 applications (p. 335). Collaborating with colleagues can benefit my work and directly apply to my daily job with my team members (p. 351).

The Appendix in *Microsoft Excel Step by Step* also provides keyboard shortcuts for Excel and Microsoft 365 (p. 425). The highlight is that all levels of readers can read this book and use it as a reference. You can start with any chapter and read specific task steps that you want to learn how to do.

Overall, the book's layout is simple and guides steps with practical examples and screenshots to present the exact step to make an understanding and give a chance to get familiar with each task.

An E-book edition is also available and offers the ability to search any text/word or copy and paste the contents.

Sam Lee

Sam Lee is an STC member and a Policies & Procedures SIG co-manager. He has a Master of Technology Management, Master of Engineering Electrical Engineering at Memorial University, and a Technical Writing Certificate at the University of Waterloo. Sam is a Senior Avionics Engineer, where he designs avionics systems and writes aviation certification-related documentation.

Design for Change in Higher Education

Jeffrey T. Grabill, Sarah Gretter, and Erik Skogsberg. 2022. Johns Hopkins University Press. [ISBN 978-1-4214-4321-8. 166 pages, including index. US$32.95 (hardcover).]

Design for Change in Higher Education argues that higher education needs to change in response to several societal pressures, including demographic changes in students, cost pressures, and the growth of educational technologies (pp. 1-2). The authors present a framework for redesigning higher education to meet these challenges, a framework that models the design process as a conversation amongst stakeholders (p. 12). Ultimately, the book serves as a rationale for a playbook for redesigning higher education: https://hubplaybook.org/. In this way, the book's chapters each explore a facet of redesigning higher education, from introducing the term learning experience design in Chapter 1 through explaining how institutions can serve as design organizations in Chapter 6.

First, in Chapter 1, the authors introduce learning experience design as "an emerging approach to learning design that uses methods borrowed from related design disciplines such as user experience design and service design thinking" (p. 25). This way of thinking scaffolds the rest of the book. For example, Chapter 2 explores how to apply learning experience design in higher education by introducing guiding principles for doing so. Chapter 3 takes on the design of conversations in higher education, which the authors value "as a way to 'unfreeze' problems, identify potential solutions, and prototype ideas" (p. 64). Chapter 4 introduces change management as a means of employing these principles. Chapter 5 takes on the role of assessment and research in this process. Chapter 6 takes on design operations and how it can be used to repurpose institutions as design organizations.

Overall, *Design for Change in Higher Education* is a provocative take on the function of higher education and its role in society. It argues that higher education should be able to pivot much like private sector organizations do in response to market trends, societal expectations, and funding challenges. Whether this is a feasible approach to many institutions of higher education, however, is another question. The authors would say yes. And they lay out a compelling road map for rethinking of colleges and universities as places driven by design, innovation, and adaptation.

Any member in the technical communication field that has any connection to higher education would probably find this book very interesting. It seems specifically targeted at university researchers, teachers, and administrators, however, or those in the trenches of higher education. In summary, if the reader wants to explore a daring roadmap for redesigning higher education to improve how well it can provide education, research, and other resources to those affiliated with it, then *Design for Change in Higher Education* is highly recommended.

Guiseppe Getto

Guiseppe Getto is a faculty member at Mercer University. He is also President and Co-Founder of Content Garden, Inc., a content strategy and UX consulting firm.

Pink Flamingos & the Yellow Pages: The Surprising Stories behind the Colors of Our World

Bob Hambly. 2022. Chronicle Books. [ISBN 978-1-4521-8049-6. 112 pages. US$22.95 (hardcover).]

Why is the blue ribbon considered the best? What is the "world's ugliest color"? And is there a reason that the yellow pages are, in fact, yellow? Bob Hambly addresses these questions and more across 75 short essays in *Pink Flamingos & the Yellow Pages: The Surprising Stories behind the Colors of Our World*. This book celebrates color and design, showcasing the most intriguing tales of color throughout history. These stories take on several forms: some explain why a certain object (such as the titular flamingo) is colored in a specific way, while other essays examine the origin of a color-related term (as in "purple prose"). Each page features a new topic, drawn from an extraordinarily broad group of fields. As Hambly states in the book's introduction, "… color is a never-ending study. Fine art, design, nature, literature, history, and sociology are forever expanding my appreciation of the subject" (p. 9).

Though the essays can be read by themselves, taken together they reinforce this theme. Color is everywhere. A good designer always has a reason for introducing color, whether it is on a sports uniform, a country's flag, or an auditorium seat. All the essays support this claim, but some are inevitably more interesting than others. Conversely, many topics are more interesting than their essay can accommodate; for instance, the entry on "redheads" doesn't disclose what causes different hair colors, or why red is the rarest hair color. Several essays leave questions unanswered, which can be frustrating since each essay is typically shorter than half a page. At only 112 pages, this book can be described as "brief" as it is an easy read that left me wanting more. Hambly adapted this book from his *Colour Studies* blog where he could have added other content to make this book more meaningful.

I hesitate to recommend *Pink Flamingos & the Yellow Pages* to someone wanting serious analysis of color; its brevity keeps the book from being a true resource for color study, such as Victoria Finlay's *Color: A Natural History of the Palette*. Ultimately though, that's not what this book is striving for. This book is an excellent resource for anyone with a casual interest in color studies and provides a great example of how to communicate a wide swath of technical topics to a general audience. By linking so many distinct domains through color, Hambly demonstrates how pervasively the study of color has affected our lives. There are plenty of fascinating facts and stories throughout the book's essays. Readers who are left wanting more can always seek out Hambly's *Colour Studies* blog for more stories of colors and their history.

Nathan Guzman

Nathan Guzman is a graduate student studying technical communication at the University of Alabama–Huntsville. His background is in aerospace engineering with plans of becoming a full-time editor upon graduation. Nathan is an avid reader with interests in reading anything that expands his knowledge of the world and how it works.

Keeping the World's Environment under Review: An Intellectual History of the Global Environmental Outlook

Jan Bakkes, Marion Cheatle, Nora Mžavanadze, László Pintér, and Ronald G. Witt. Central European University Press. [ISBN 978-963-386-595-8. 534 pages, including index. US$40.00 (softcover).]

Fifty years ago, the United Nations established the United Nations Environmental Programme (UNEP) designed to monitor the global environment. In 1992, UNEP developed

the Global Environmental Outlook (GEO), which is a comprehensive report published every four years. The GEO is designed to assess and discuss global environmental issues. *Keeping the World's Environment under Review: An Intellectual History of the Global Environmental Outlook*, by Jan Bakkes, et al., is a thorough attempt to "document and critically analyse the history of the GEO," which has published six editions to date (p. 5).

Each chapter evaluates one aspect of researching and writing the GEO, from "Collaboration and Participation in the Global Environment Outlook Process" to "Global Perception and Influence of the GEO." These chapters cover specific and highly technical information, but the authors bring up many salient points that are of more general interest, such as the GEO's role of serving as a predictor of emerging environmental issues. The GEO reports warned us of the emerging crisis in global resources as countries became wealthier and began to rely more on meat-based diets, for example.

Many of the issues discussed in this book are applicable to any discipline that conducts collaborative research and writing. Technical communicators may appreciate the discussion of how the global GEO team collaborated on the research and writing of each report, as well as the discussion of effective practices for stakeholder outreach. As a researcher in intercultural technical communication, I valued the in-depth discussion of the singular success in researching and writing in the Latin American countries, which the authors attributed to the "cultural and linguistic homogeneity" of the region (p. 168).

The writing in *Keeping the World's Environment under Review* should be easy to follow for most technical communication professionals, despite the abundance of acronyms that we have come to expect from government publications. Much of the discussion draws from interviews with stakeholders, government officials, and researchers who have contributed to one or more of the GEO reports. The chapters are well-organized and contain the appropriate call-out boxes, chapter summaries, and definitions, making the format ideal for a reader who is new to this topic. The full-color photos and graphs are eye-catching and support the information well.

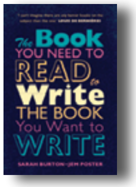
Keeping the World's Environment under Review is not light reading by any means, it is too technical, and the subject matter is too specific to be of interest to a more general audience within technical communication. However, technical communicators working with large, global or multi-regional teams or technical communicators working in environmental or intercultural communication would find many gems in this book that they could apply to their work or research.

Nicole St. Germaine

Nicole St. Germaine is an associate professor of English at Angelo State University in San Angelo, Texas. She specializes in intercultural technical communication in the health fields.

The Book You Need to Read to Write the Book You Want to Write: A Handbook for Fiction Writers

Sarah Burton and Jem Poster. 2022. Cambridge University Press. [ISBN 978-1-009-07373- 8. 284 pages, including index. US$16.95 (softcover).]



The Book You Need to Read to Write the Book You Want to Write: A Handbook for Fiction Writers contains some excellent observations for people interested in writing fiction. It is a tremendous piece of research. The discussions dig so deeply into topics that readers are left with the question: Now how do I apply this? It's not a how-to book.

The book has chapters on Character, Plot and Structure, Dialogue, Narrative Point-of View, Beginnings and Endings, and Descriptions, among others. All with interesting tidbits, such as the interaction between topics. For example, Chapter 3, Character, points out the two-way relationship between plot and character: "Characters make things happen and the things that happen affect the development of characters" (p.17).

There are two principal ways of introducing characters into fiction: 1) Introduce them explicitly by painting a detailed portrait of their appearance (and personality) "before allowing them to assume their role in the story", and 2) (currently the more usual) "set them loose in the story," and let the reader build up the picture by seeing them in action, which is more like the cinematic (p. 19).

Learning little by little is how we get to know people in real life. "A well-drawn character often

accumulates in the reader's mind rather than springing fully-fledged from the first page" (p. 20).

On the downside, Chapter 10, Description, has a section on Metaphors and Similes (pp. 187–190). Instead of emphasizing the use and elaboration of this powerful technique, Sarah Burton and Jem Poster criticize its potential for producing hackneyed prose. And we must remember that what we today call fiction techniques have become common in all genres: trade and scholarly writing.

Another corrective deals with formatting: There are often too many pages of straight text without intervening heads and subheads. This makes the material less inviting, harder to understand, and…to remember. Chapter 4, for example, has 14 pages, with only one subhead for the first 10 pages. Chapter 9 has five subheads for its 22 pages.

Chapter 9, Beginnings & Endings: Tension & Pace, offers some sage advice, and echoes in print, that immortal sales pitch: You never get a second chance to make a first impression. Basically, the opening should contain whatever hooks the reader; whatever draws them in. The crucial thing is to be sure it has a function; that it has a bearing on the narrative (p. 167).

An ending is many-faceted: Does it end too soon? Too abruptly? Is it satisfying? Unsatisfying? Does the end go on too long? A good ending in some way usually gestures back in some way, to earlier events; sometimes recalling the opening of the story (p. 175). An interesting question to ask yourself at the end of every chapter is: What has the chapter added to the story?

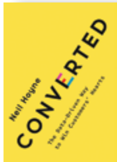
For reasons like these, I'd say *The Book You Need to Read to Write the Book You Want to Write* would be more useful for advanced students of writing

Steven Darian

Steven Darian is a professor emeritus at Rutgers University. He has written more than a dozen books on topics ranging from *Technique in Nonfiction: The Tools of the Trade* to *The Role of Religion in Just About Everything.*

Converted: The Data-Driven Way to Win Customers' Hearts

Neil Hoyne. 2022. Portfolio/Penguin. [ISBN 978-0-593-42065-2. 216 pages, including index. US$27.00 (hardcover).]



Converted: The Data-Driven Way to Win Customers' Hearts is a brief book by Neil Hoyne, Google's chief measurement strategist, about how to get the most out of the data generated by your relationships with your customers. It will bring you up to speed with a smattering of research-backed psychological insights that carry often unintuitive implications for digital marketing.

For example, Hoyne writes about a website that deliberately delayed displaying search results by a few seconds. This caused users to value the results more highly, due to the same psychological principle that causes restaurant patrons to report their food as tastier if they watch cooks laboring over it. Digital marketers can thrive by embracing our often-irrational human nature.

One notable anecdote in the book is about a hotel company that discovered it was wasting money on customers who would return to the website via paid search advertisements just so they could check on their reservations. In response, the hotel company began emailing reminders to their customers a few days before their reservations. However, this unexpectedly led to even steeper monetary losses as the reminders prompted some people to cancel their stays. Losses though they may be, I thought at this point that Hoyne might acknowledge that the hotel company's reminders ultimately helped customers by saving them the headache of being charged for a reservation that was perhaps unintended or forgotten. However, the company's response, relayed uncritically by Hoyne, was to figure out a way to predict which customers were most likely to cancel and then exclude them from receiving reminders. This stood out to me as a stark representation of the book's profit-above-all-else perspective.

The more data you can gather on your customers the better, since analysis is inherently fraught with subjectivity, as *Converted* convincingly argues. However, Hoyne's advice for separating the signal from the noise and identifying the most pertinent hints in your data is little more than a couple of vague pages about the wonders of machine learning. *Converted* is at its best when it inspires with its nuggets of insights pulled

from the pages of academic marketing journals. The numerous anecdotes are meant to encourage the reader to get started collecting and analyzing customer data in whatever way they can. Hoyne emphasizes that starting simple and imperfectly is not only a sound idea but is ultimately a requirement to avoid being surpassed by your more fearless, experimental competitors.

Josh Anderson
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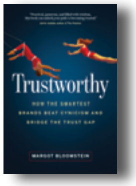
Trustworthy: How the Smartest Brands Beat Cynicism and Bridge the Trust Gap

Margot Bloomstein. 2021. Page Two Books. [ISBN 978-1-989603-92-5. 250 pages, including index. US$24.95 (hardcover).]



Trustworthy: How the Smartest Brands Beat Cynicism and Bridge the Trust Gap is a narrative and instructive book that offers readers a three-prong approach to building and sustaining trust through voice, volume, and vulnerability. Margot Bloomstein conducted over 25 interviews with academics, politicians, and business experts to better understand how marketers, designers, and writers can go beyond buzzwords like "empathy" and "transparency" to increase confidence, encourage authenticity, and eventually, build trust for consumer brands.

Voice: Bloomstein likens voice to a unique personality that helps customers understand who you are, what you do, how you do it, and most importantly, why you do it. Voice offers your audience stories about you and your employees or educational information about your products and services. You can go a step further by providing meaningful commentary on industry trends or advice for common problems adjacent to your brand. Providing content with a specific voice is most effective when it is written in plain language (Chapter 4), educates customers with humility (Chapter 3), and communicates consistently across time and channels (Chapter 2).

Volume: Besides a unique voice, Bloomstein recommends consumer brands design with patterns and visuals that make the information easy to digest and remember. Volume refers to how much you say, when you say it, where you say it, and how often you say it. Offering too much detail can overwhelm customers, while providing too little can make them think you're holding something back. It's important to speak with authenticity and brevity (Chapter 6), share examples of your work early and often (Chapter 5), and find a balance between fidelity and abstraction (Chapter 7).

Vulnerability: Over the last few years (and thanks to public intellectual Brené Brown), vulnerability has gained much attention in business and political spheres. Vulnerability is necessary for consumer brands to build and sustain trust with their customers. However, to be most effective, vulnerability must be combined with convening community for collaborative creation (Chapter 8), a willingness to reflect and learn from what goes wrong (Chapter 9), and a vision for the future that is not only focused on profitability, but also responsibility, sustainability, and self-awareness (Chapter 10).

As someone who has worked in both academia and industry, I found this book to be well-researched and very accessible. Bloomstein follows her own advice by writing in plain language and offering her readers a unique perspective (voice) with just the right amount of information (volume) and willingness to share personal details of her own experience and those of her interviewees (vulnerability). *Trustworthy's* organizational patterns (three key points with three chapters each) made the reading experience enjoyable and memorable. Because of Bloomstein's expertise in content strategy and because I received this book at the 2022 STC Summit, which was focused on content strategy, I was expecting this book to focus primarily on the impact of the content—but it's so much more! I recommend *Trustworthy* to anyone who is interested in learning how to embrace change, challenge the status quo, and build trust for a brand or organization.

Erica M. Stone, PhD
Erica Stone is a member of STC as well as the East Tennessee chapter. For the last three years, she has served as a reviewer on the STC Scholarship Committee. She has more than 10 years of technical communication experience with a focus on UX writing and content design.

Courageous Discomfort: How to Have Important, Brave, Life-Changing Conversations About Race and Racism

Shanterra McBride and Rosalind Wiseman. 2022. Chronicle Books. [ISBN 978-1-79721-526-6. 260 pages, no index. US$24.95 (softcover).]

Oscar Wilde is credited with the observation that "a gentleman never gives offence unintentionally". In *Courageous Discomfort: How to Have Important, Brave, Life-Changing Conversations About Race and Racism*, Shanterra McBride and Rosalind Wiseman implicitly critique Wilde's notion by reminding us that if we assume the right to offend, we're ignoring the "gentle" part of "gentleman." Most people have enough stress in their lives and carry enough wounds that it's cruel to add to that burden—particularly for those who have suffered a lifetime of discrimination or even outright racism.

Courageous Discomfort follows a simple, effective structure: Each chapter begins with a story that illustrates a particular problem and context, explains "what's really going on", and presents key principles for coping (the chapter's message and purpose). Each chapter clarifies a different aspect of racism and its impacts. The authors end by proposing potential strategies and solutions and key takeaway messages.

Racial issues are a minefield. Microaggressions are ubiquitous and unending; even simple expressions of curiosity like "where are you from?" (the answer is often "right here!") are problematic because each, individually, seems minor, but taken together, they create considerable cumulative pain (p. 76). If you haven't experienced that endless friction, its severity may surprise you.

Throughout the book, the authors focus on building empathy, which makes it easier to understand the problems we cause and muster the courage to solve them. When we cause harm, we should seek atonement. Their proposed method resembles the Jewish concept of "t'shuvah" and the Canadian First Nations concept of restorative justice: confess our error; honestly express regret for what we've done, without self-justifying; vow to try not to sin again; and seek a way to make amends. McBride and Wiseman remind us we should do the right thing not to earn a reward or recognition, but rather because it's the right thing.

Reading this book takes work: you can't just read it and walk away. You'll need the courage to risk making mistakes and a heartfelt desire to do better next time. You'll be constantly challenged to be better and do better, which is uncomfortable. Some exercises will anger you because they ask you to challenge comfortable assumptions or accept responsibility for good intentions gone astray. But if you read this book and examine your responses honestly, you'll learn to look beyond yourself and focus on the needs of others. It's all about preserving the other person's dignity. If you start there and keep returning to that focus, you may still err, but you'll be better able to recover from the error.

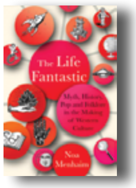
Although *Courageous Discomfort* focuses on the Black American experience with implicit and explicit racism, the principles of kindness, respect, and preserving another person's dignity apply to any difficult conversation, whether it focuses on gender, religion, or culture.

Geoff Hart

Geoff Hart is an STC Fellow with more than 30 years of writing, editing, translation, and information design experience. He's traveled widely and worked with authors from many cultures. He's the author of two popular books, *Effective Onscreen Editing* and *Writing for Science Journals.*

The Life Fantastic: Myth, History, Pop and Folklore in the Making of Western Culture

Noa Menhaim. 2022. Watkins Publishing. [ISBN 978-1-78678-647-0. 278 pages, including index. US$24.95 (hardback).]



There exists in Western culture certain core stories and themes that everyone seems to know about. For example, creatures of mythology and fantasy ranging from unicorns to vampires, witches to fairies. But where did the concepts for each of these originate? In *The Life Fantastic: Myth, History, Pop and Folklore in the Making of Western Culture*, Noa Menhaim strives to explore the cultural roots of legendary concepts which flourish in our literature, cinema, and everyday thoughts.

To tackle such diverse concepts as alien invasions, the origins of Dungeons & Dragons, Star Wars, and authors of children's literature such as Lewis Carroll and J. M. Barrie, Menhaim organizes this book into a series of independent essays. Each chapter is a

standalone analysis of one topic, such as the creation of books and the history of the Norse gods. Menhaim uses a unique method of cross-referencing to tie each chapter together. When a subject is mentioned which is discussed in greater detail in another chapter, a callout like a review comment in Microsoft Word is placed in the margin, with a line leading to highlighted text that it references. These callouts often give a small tidbit of relevant information, and then a reference to another chapter, along with the page number. This system operates separately from the extensive set of endnotes which serve as citations. For example, the chapter about mermaids discusses the evolution of the mermaid illustration on the Starbucks logo. Various forms of the logo were criticized by conspiracy theorists, so Menhaim included a callout highlighting "conspiracy afficionados" and then referencing a chapter that discusses conspiracy theories about faking the moon landing. In this manner, readers are guided to a related topic much like reading an article online and following embedded links to related articles.

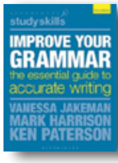
If you've ever wondered how the days of the week got their names, or how images of the Christian devil have come to resemble the ancient Greek god Pan, then *The Life Fantastic* can deliver such knowledge in fiendishly delicious, bite-sized pieces. The chapters are short enough to read in one sitting but detailed enough that you'll want to focus on every point made. There is no need to read the book in any order as there is culmination of essays, but simply a collection of interconnected articles. Diverse topics from classical literature to Frank Herbert's *Dune* are all tied together in an engrossing and thoughtful book which is bound to teach anyone something about their common culture.

Timothy Esposito

Timothy Esposito is an STC Fellow, current STC Vice President, and past president of the STC Philadelphia Metro chapter. He is the Manager of Logistics Documentation at Oracle with more than 20 years of technical communication experience.

Improve Your Grammar: The Essential Guide to Accurate Writing

Vanessa Jakeman, Mark Harrison, and Ken Paterson. 2022. 3rd ed. Bloomsbury Academic. [ISBN 978-1-3509-3363-5. 152 pages, including index. US$24.95 (softcover).]



This is a book about British English. Of course, much of the grammar is the same on either side of the pond. However, there are some differences (audience as a plural or singular noun, p. 33). Some vocabulary and phrasing are also British, such as "Use a **full stop** after the second inverted comma…" (p. 50). Occasional notes address US English spelling or style (in the unit on spelling mistakes, p. 122). International students often learn UK English and may find this book familiar, but US students may be better served by a textbook on American English.

Improve Your Grammar: The Essential Guide to Accurate Writing starts out with basic concepts, such as defining nouns and verbs, and progresses to more complex questions, such as the use of phrasal verbs (Unit 54, p. 110). While the early units should be familiar to readers who attended school in an English-speaking country, they may prove useful to international students. Some notes, such as on the different connotations of "could" and "can" (p. 80), and certain chapters, such as on collocations (Units 55 and 56, pp. 112–115), may be especially helpful to non-native English speakers.

Each two-page spread focuses on a very specific grammar or style question, as detailed as Linking: Causes (Unit 28, pp. 58–59) and Linking: Results (Unit 29, pp. 60–61). Examples and exercises within a unit often center around a theme, such as business (Chapter 9, pp. 20–21). Writing tips address the implementation of the unit's focus, while other boxes warn of frequently confused words or remind students about the difference between spoken language and academic writing. References to other units help readers identify and quickly find information on other issues with which they may be struggling.

Since it includes an answer key, *Improve Your Grammar* could be used for self-study. However, more complex exercises may be resolved in more than one way. In such cases, the key lists a sample answer. Students who are using the book on their own may want to ask someone else to evaluate and/or correct their replies to these exercises.

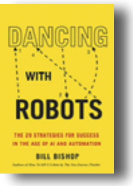
The authors break down the English language into bite-sized units that progress from simple grammatical concepts to writing cover letters (or "covering letters" in UK English). *Improve Your Grammar* is well organized and laid out to make information easy to find. As noted above, however, it may be better suited for students at UK universities than their counterparts at US colleges.

Barbara Jungwirth

Barbara Jungwirth writes about medical topics (www.bjungwirth.com) and translates medical and technical documents from German into English (www.reliable-translations.com). She has written for print and online media since her high school days and majored in media studies.

Dancing with Robots: The 29 Strategies for Success in the Age of AI and Automation

Bill Bishop. 2022. Dundurn Press. [ISBN-978-1-4597-4902-3. 208 pages. US$21.99 (softcover).]



In his work as a coach, futurist, and speaker, Canadian author Bill Bishop helps people think about how to deal with what he calls the New Economy which he argues will replace the economy we now have as a result from the Industrial Revolution. Bishop has worked with more than 5,000 companies to help them think about how to succeed in the New Economy that includes artificial intelligence, automation, and robots. *Dancing with Robots: The 29 Strategies for Success in the Age of AI and Automation* explains what he feels humans need to do to succeed in this New Economy, and when he uses the term "dancing with robots". Bishop means "dancing" in a metaphorical sense noting that humans will benefit in the future as they tap into the uniquely human ability to express metaphors—something a robot cannot do—and one of Bishop's ideas about what skills we have that will help us succeed in the future.

Bishop addresses in his book the 29 strategies that humans can use to successfully live in the New Economy. Two of the strategies were of particular interest. One deals with increasing well-being while using fewer resources (p. 21), and the other deals with dematerialization (p. 49).

"Greater consumption equals greater happiness" (p. 22) is an idea that Bishop argues should become obsolete in the New Economy. Better results using fewer resources would be the new ideal with companies that recognize this being in high demand. Bishop argues that Google Navigator uses this approach as it helps a person get to a destination using fewer resources as they use the shortest possible route.

Dematerialization is another of Bishop's strategies for the future. Bishop gives the example of using SodaStream to make sparkling water instead of buying Perrier bottled water and needing to go a store to buy Perrier and then recycling the bottles. With SodaStream, you go to a store less for your sparkling water and have less to recycle—reaching Bishop's goal of dematerialization using fewer materials.

These two ideas of dematerialization and using fewer resources to achieve well-being provide a glimpse into Bishop's thinking about success in the future and what companies and individuals can do to thrive in the New Economy. Bishop also notes what not to do to thrive in the future with an example of not relying too much on artificial intelligence, automation, and robots. Considering this idea of what Bishop argues we should not do, maybe we should be careful, for example, in our expectations in using robots and artificial intelligence to clean a house and drive us around.

Jeanette Evans

Jeanette Evans is an STC Associate Fellow; active in the Ohio STC community, currently serving on the newsletter committee; and co-author of an *Intercom* column on emerging technologies in education. She holds an MS in technical communication management from Mercer University and undergraduate degree in education.

Taxi from Another Plant: Conversations with Drivers about Life in the Universe

Charles S. Cockell. Harvard University Press. [ISBN 978-0-674-27183-8. 288 pages, including index. US$26.95 (hardcover).]

Taxi drivers like to talk. Depending on the situation, you may find yourself in a conversation about their latest fare, why you're in town, what's happening in sports, or—heaven forbid—politics.

Astrobiologist Charles S. Cockell discovered that taxi drivers even like to talk about space and what, if anything, lives in it. They wonder if there

are alien taxi drivers, whether aliens would inflict us with diseases or share their technology with us, and what it would be like to travel to or live on another planet. And that's just the first three chapters.

Of the many questions asked throughout *Taxi from Another Planet: Conversations with Drivers about Life in the Universe*, one from Chapter 10 is, "Will we understand aliens?" Cockell suggests that scientific method could be a basis for communication because it helps us develop theories, make predictions, and build things. We know the theories are accurate when the predictions come true, and the things that we build work as expected. He suggests that aliens, too, would use the scientific method to build the ships they'd travel to earth. That commonality would form the basis for learning their language, understanding their culture, and determining how their brains work.

After a news segment during another taxi ride, the driver commented on the many problems in the world. "'Well we gotta get it sorted, right? There's nowhere else to go,' she suggested" (p. 90). Establishing settlements on the moon or Mars isn't just a book or movie plot. In Chapter 7, Cockell lays out the concept of multiplanetary species and establishing an independent branch of humanity on another planet to avoid human extinction. Separate chapters in this book address the harsh, hazardous conditions on other planets and atmospheres that are not fit for humans. As you might surmise, traveling to another planet is significantly different than living on another planet.

If you're intrigued by the concept of life beyond Earth and space exploration, then *Taxi from Another Planet* will be an interesting read for you. Inspired by conversations with drivers around the world, Cockell spins them into engaging chapters that bring together observations and ruminations about human history and scientific knowledge. And you'll discover you're not the only one who wonders if we're alone in the universe.

Michelle Gardner
Michelle Gardner is a contract senior writer at Microsoft focused on their cloud portfolio. She has a bachelor's degree in Journalism: Public Relations from California State University, Long Beach, and a master's degree in Computer Resources and Information Management from Webster University.

Inventing the Alphabet: The Origins of Letters from Antiquity to the Present

Johanna Drucker. 2022. University of Chicago Press. [ISBN 978-0-226-81581-7. 384 pages, including index. US$40.00 (hardcover).]

The title of *Inventing the Alphabet: Origins of Letters from Antiquity to Present* is a bit misleading, as it implies the contents will simply be a history of the invention of the alphabet, but instead the book reveals a history of thought that surrounds the historical investigations into the lineage of the alphabet. Which in truth is so much more interesting. Author Johanna Drucker identifies the book as historiography, rather than a history, and explains that the book's goal is to examine these historical approaches to investigating the history of the alphabet, and in doing so Drucker believes that the story told will expose a history of Western thought.

There are nine chapters in *Inventing the Alphabet* covering a wide variety of topics regarding the historical investigations of the alphabet. The first chapter addresses the pervasive idea that the alphabet was invented by the Greeks and the line of thinking that led to this mistaken belief and the biases that formed it, which Drucker attributes to "a biased hierarchy of cultures" (p. 32). Drucker points out that for much of this history, antiquarians, scholars, historians, and the like, sought to find the biblical foundations for the alphabet, which caused some misinterpretations of facts as well as misidentified scripts.

There are missteps and wrong turns throughout the book, and the history explored in *Inventing the Alphabet* is steeped with bias. Again and again, the investigators try to bend the facts and findings to fit their beliefs. From trying to make it fit biblical stories, to trying to prove that there was no connection to any Semitic cultures, to fit anti-Semitic ideals. The investigations of this history only start to feel like it is rooted in evidence beginning with chapter 6, which explores the use of charts for visual comparison of alphabets, and chapter 9, which discusses the effects of modern archeological practices in the investigations on the history of the alphabet.

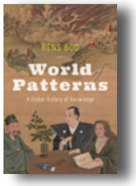
Some of the wrong turns prove to be quite interesting, such as the falsely documented magical, celestial, and angel scripts. However, the most interesting of all is the tale of the devil's script which turns up in a grammar book published in 1538. It is

not an image-heavy book, but the images support the content well and help the reader to visualize the scripts. The long titles of books referenced from the past are an endless source of entertainment, such as *An Introduction To Languages, Literacy and Philosophical: Especially to the English, Latin, Greek and Hebrew; Exhibiting at One View Their Grammar, Rational, Analogy, and Idiom In Three Pars* (p. 147). However, this is a book for serious history readers, it is a bit dry at times, and yet it provides great insight into historical approaches of the past, as the author intended. So, while a history of the alphabet would have been an interesting read, as Drucker points out, many such histories have already been written, and historiography that examines these histories is much more worthwhile.

Amanda Horton
Amanda Horton holds an MFA in Design and currently teaches graduate and undergraduate courses at the University of Central Oklahoma (UCO) in the areas of design history, theory, and criticism. She is also the director of the Design History Minor at UCO.

World of Patterns: A Global History of Knowledge

Rens Bod. 2022. Johns Hopkins University Press. [ISBN 978-1-4214-4344-7. 400 pages, including index. US$65.00 (hardcover).]



Rens Bod tells readers that he "tried to highlight the widest possible variety of knowledge disciplines from as many parts of the world as possible within the limitations of a single book" (p. 303). Mission accomplished. This encompassing tome has something for everyone but is not for everyone. Scholars, researchers, historians, philosophers, astronomers, and mathematicians will appreciate this weighty treatise. Knowledge management (KM) practitioners will need to work to form applications from this, but they are there.

To start, practitioners should read the first paragraph of the Introduction of *World of Patterns: A Global History of Knowledge* and then go straight to Chapter 1. After the first paragraph, the background information could put practitioners off from continuing. It is in the chapters that Bod weaves the historical narrative with stories, images, and rich multidisciplinary discourse. Certain stories will resonate more depending on the readers' interests. While some will be naturally drawn to stories about language and grammar, others will gravitate toward the stories about medicine, math, or stories about the great philosophers and their contributions to the history of knowledge.

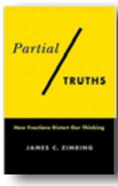
For practitioners, the chapter conclusions are where Bod makes history relevant to today's KM challenges. Chapter 1, for example, provides an excellent summary on tacit knowledge, which is something practitioners strive to surface in organizations. His discussion in Chapter 4 about the postclassical period's knowledge generation and reduction will resonate with those readers trying to wrangle and make sense of data's ever-growing footprint. Chapter 5 gives hope to the practitioner regarding knowledge gaps as Bod explains how great divergences of knowledge over time are only temporary. "Sooner or later, useful patterns from one civilization are adopted by other civilizations they come into contact with" (p. 302). In his overall conclusion, Bod references failed knowledge. This disclosure is a relief. To know that throughout history failed knowledge has occurred and to see the examples provided by Bod (p. 310) is a reassurance to practitioners that KM can prevail despite its sometimes-spectacular failures.

Bod does two things well. He recognizes women's contributions to the history of knowledge that continue to be largely missing from the narrative, and he achieves a history of knowledge that does not presume Europe or the West as the primary centers of knowledge. His intent in authoring *World of Patterns* was to include Asia, Africa, the Arab world, Oceania, and pre-Columbian America's (p. 5) and that intent is fully met.

Liz Herman
Liz Herman, PhD, is an STC Associate Fellow and is a knowledge management practitioner who is certified in project management and technical communication. She works for Accenture Federal Services as a Senior Manager.

Partial Truths: How Fractions Distort Our Thinking

James C. Zimring. 2022. Columbia University Press. [ISBN 978-0-231-20138-4. 244 pages, including index. US$28.00 (hardcover).]



In a world of exponentially growing data in all subjects, fractions and percentages are more important for both official and casual communication. In *Partial Truths: How Fractions Distort Our Thinking*, James C. Zimring claims that everything from

scientific research to new age beliefs are distorted by bias created from numbers. By omitting sample size, failing to create appropriate data, or even manipulating existing data, our society derives faulty conclusions. His analysis of how and why this happens examines evolutionary human psychology and how misperceptions can lead to propaganda and polarization of society.

In this twelve-chapter book divided into three sections, Zimring lays out his arguments about data misperceptions. In Part 1, he explains how anecdotal evidence can persuade people with a sample size too small for valid conclusions, called "ignoring the denominator" (p. 17). A relevant example of this occurred when then President Trump claimed the United States had more cases of Covid-19 than other countries because we were testing more people. Trump ignored the denominator by failing to communicate that our rate of infection (cases per total number of people tested) was higher than other countries. Zimring goes into more depth on possible ways the data could have been collected and analyzed to derive different conclusions.

Presentation of data is just as important as our perception of it. Zimring's focus on human psychology and perception renders his title choice a bit misleading—the book might more accurately be called *Partial Truth: How Fractions and Human Psychology Distort Our Thinking*. One simple psychology concept introduced and carried is that of a heuristic. "A heuristic is a process by which human minds rapidly solve complex problems by replacing them with analogous but simpler problems" (p. 32). These mental shortcuts can play tricks on our minds and influence how we formulate conclusions. Confirmation bias is another important psychological concept that "… is not a belief. Rather, confirmation bias is a process by which we reinforce our beliefs—any beliefs—regardless of origin or accuracy" (p. 42).

Part 2 focuses on how heuristics, confirmation bias, and other tendencies influence the interpretation of data that often leads to faulty outcomes. Focus areas include identification of criminals, invasion of Iraq, interpretation of coded messages in ancient texts, new age methods, evolution/natural designer arguments and, most importantly, the physical sciences.

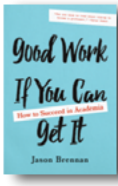
Part 3 discusses how we can try to influence the way people think and avoid harmful polarizations of disagreement often based on the same available data. Methodology includes "epistemic network models" (p. 178) of actors in simulated social networks enacting various scenarios. Social networks analyze the effects of human tendencies, including confirmation bias and heuristics to arrive at conclusions.

In conclusion, Zimring summarizes, "We need the availability heuristic, and confirmation bias, and all of the other forms of misperceiving the fraction described herein. They fuel our advances as well as lead to our demise" (p 201). A contradictory statement of sorts alludes to the complexity of trying to decipher something that should be logical and yet is not.

Julie Kinyoun
Julie Kinyoun is an on-call chemistry instructor at various community colleges in Southern California. An avid reader, she enjoys reviewing books that help her become a better educator.

Good Work if You Can Get It: How to Succeed in Academia

Jason Brennan. 2020. John Hopkins University Press [ISBN 978-1-4214-4328-7.192 pages, including index. US$$19.95 (softcover).]



Good Work if You Can Get It: How to Succeed in Academia by Jason Brennan is a no-holds-barred look at the side of academia that glossy brochures and pithy web site copy won't show students. Many technical communicators once had the same dreams that new graduate students have: going to work at a respected university, conducting important, field-changing research, and teaching a classroom full of eager students. Those of us who succeeded and earned a job in academia know that the process of getting the PhD and getting that coveted tenure-track faculty position is a lot messier, more frustrating, and more difficult than we had imagined.

Brennan begins the book by citing a startling fact: "Roughly half [of graduate students] will quit or otherwise fail to earn their doctoral degree. Most graduates will not get a full-time academic job of any sort upon graduation" (p. 1). Despite this jarring introduction, Brennan's mission in writing *Good Work if You Can Get It* wasn't to scare away students; rather, it was to inform the prospective graduate student about

what the process of earning a PhD is really like, and what their job prospects are upon graduation (p. 3).

This book covers a variety of topics that a potential graduate student would need to know, such as how to select the right graduate school, what the workload is like in graduate school, how to make yourself a competitive candidate on the job market, how to finance your graduate education, and even personal advice about dating in graduate school. Brennan's advice is often blunt and uncomfortable to read, but in my more than 20 years of academia experience, it is largely an accurate picture of what the graduate student can expect.

Not all of Brennan's information is full of doom and gloom, however. Much of his advice is about how to be successful by strategizing to make the most of your time in graduate school and leveraging your abilities into a job at the type of university that is best suited for your needs. I was fortunate enough to have a dissertation chair who gave me the unvarnished truth about academia, but I would have undoubtedly benefitted from reading this book before I had started graduate school. Like many other academics, I entered graduate school because I wanted a PhD beside my name. I unwittingly stumbled into my "calling." However, many other graduate students won't be as fortunate as I have been.

Good Work if You Can Get It is a must-read for bachelors and masters-level students in any academic discipline who are contemplating a career in academia. Completing a PhD requires a sizable investment in both time and money, and any prospective graduate student should go into their chosen PhD program with a clear understanding of the expectations and achievements required to finish the degree and gain a tenure-track position.

Nicole St. Germaine

Nicole St. Germaine is an associate professor of English at Angelo State University in San Angelo, Texas. She specializes in intercultural technical communication in the health fields.

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STC Summit Pre-Conference Courses (half day)	3
STC Annual Summit	8
Begin and complete a college-accredited course related to the Technical Communication field	8
Published articles that relate to any aspect of *Technical Communication* (2/article)	2
Published books publicly available on topics related to *Technical Communication* (5/book)	5
Presentations at conferences related to aspects of *Technical Communication* (2/presentation)	2
Total needed within 2 years post-certification date	12

Fees

Exam fees: STC Members $250, Non-Members, $495

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CONTACT

For more information about certification and to start the process, visit *www.stc.org* or email *stc@stc.org.*

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